**V series electronic speed regulator user manual** Ver.1.0.2

Version change history

| Date | Version | Change log |
|---|---|---|
| 2024.6.15 | Ver.1.0.0 | Create version |
| 2024.9.2 | Ver.1.0.1 | Modify the throttle stroke and some description errors |
| 2025.04.08 | Ver.1.0.2 | The description of the ESC protection function has been updated, including the display interface on the computer. Additionally, information about the new version of the ESC has been added. |

# Contents

## 1 .**Introduction**

FOC—Field-Oriented Control, a smart drive vector control technology, demonstrates higher efficiency, lower operating temperature, faster response speed, reduced noise, lower interference, linear throttle control, precise control performance, and efficient energy recovery compared to ESCs of the same power.

## 2 .Precautions

- This series of ESCs uses FOC driving mode and requires strict matching of motor parameters. It is important to note that this program is unique; each program is only suitable for a specific combination of motor and propeller and cannot be simultaneously compatible with multiple combinations. If you need to use it, please be sure to contact the manufacturer.
- The power setup for this ESC does not recommend changing the propeller to avoid triggering ESC protection due to inappropriate combinations, which may cause the equipment to malfunction. During ground testing, please do not install the propeller to ensure safety.
- Before connecting the ESC and related components, ensure that the contact points are well-insulated to prevent short circuits that could damage the ESC. Carefully check the connections of each component, as poor connections may lead to improper control of the aircraft or cause unforeseen equipment damage.
- Before using this ESC, carefully read the V series ESC user manual to ensure proper matching of the power system and avoid damage to the ESC due to incorrect configurations.
- If you need to solder the input and output connectors of the ESC, use a soldering tool with sufficient power to ensure a secure connection.
- Do not allow the ESC's external surface temperature to exceed 90℃, as high temperatures may damage the ESC and could potentially cause motor damage or a crash.
- To change the motor's direction during operation, you can either swap the order of any two phase wires or adjust the settings through the ground control station.

## 3. Feature of product

3.1 Supports DroneCAN protocol to achieve rapid integration with PX4 flight control.
3.2 Equipped with PWM and CAN dual throttle input design to back up each other.
3.3 PWM and CAN dual isolated inputs to ensure signal transmission reliability.
3.4 Support rotor lock.

## 4.Product specifications

| Model | Persistent Current | Peak Current | BEC | Cells（4.2V） | Reference options | Weight(Not inc wires)g | Appearance Dimensions（mm） |
|---|---|---|---|---|---|---|---|
| V-40A-14S | 20A | 40A | No | 6-14s | Adjustable Parameters | 50 | 62*30*18 |
| V-60A-14S | 30A | 60A | No | 6-14s | Adjustable Parameters | 63 | 77*33*19 |
| V-80A-14S | 40A | 80A | No | 6-14s | Adjustable Parameters | 78 | 84*35*19 |
| V-120A-14S | 60A | 130A | No | 6-14s | Adjustable Parameters | 130 | 103*50*26 |
| V-150A-14S | 70A | 160A | No | 6-14s | Adjustable Parameters | 206 | 116*49*31 |
| V-200A-14S | 100A | 200A | No | 6-14s | Adjustable Parameters | 243 | 127*56*33 |
| V-60A-24S | 35A | 65A | No | 12-24S | Adjustable Parameters | 283 | 115*57*27 |
| V-120A-24S | 65A | 135A | No | 12-24S | Adjustable Parameters | 460 | 133*62*38 |

## 5.Technical Specifications

| Model | Protocol | Isolation Method | Firmware Upgrade | Digital Communication Throttle | PWM Level | PWM Frequrence | PWM pulse width | Throttle calibration | Dual Throttle | Rotor lock | Protection level |
|---|---|---|---|---|---|---|---|---|---|---|---|
| V-40A-14S | CAN bus (RS485 can be customized) | Fully Isolated | Support | Support(CAN) | 5V/3.3V | 50-500 Hz | 1040-1940 us | Non-calibratable | Support（CAN+PWM） | Support,Custom motor required | IP55 (customizable to IP67) |
| V-60A-14S | CAN bus (RS485 can be customi | Fully Isolated | Support | Support(CAN) | 5V/3.3V | 50-500 Hz | 1040-1940 us | Non-calibratable | Support（CAN+PWM） | Support,Custom motor required | IP55 (customizable to IP67) |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | zed) | | | | | | | | | | |
| V-80A-14S | CAN bus (RS485 can be customized) | Fully Isolated | Support | Support(CAN) | 5V/3.3V | 50-500 Hz | 1040-1940 us | Non-calibratable | Support（CAN+PWM） | Support,Custom motor required | IP55 (customizable to IP67) |
| V-120A-14S | CAN bus (RS485 can be customized) | Fully Isolated | Support | Support(CAN) | 5V/3.3V | 50-500 Hz | 1040-1940 us | Non-calibratable | Support（CAN+PWM） | Support,Custom motor required | IP55 (customizable to IP67) |
| V-150A-14S | CAN bus (RS485 can be customized) | Fully Isolated | Support | Support(CAN) | 5V/3.3V | 50-500 Hz | 1040-1940 us | Non-calibratable | Support（CAN+PWM） | Support,Custom motor required | IP55 (customizable to IP67) |
| V-200A-14S | CAN bus (RS485 can be customized) | Fully Isolated | Support | Support(CAN) | 5V/3.3V | 50-500 Hz | 1040-1940 us | Non-calibratable | Support（CAN+PWM） | Support,Custom motor required | IP55 (customizable to IP67) |
| V-60A-24S | CAN bus (RS485 can be customized) | Fully Isolated | Support | Support(CAN) | 5V/3.3V | 50-500 Hz | 1040-1940 us | Non-calibratable | Support（CAN+PWM） | Support,Custom motor required | IP55 (customizable to IP67) |
| V-120A-24S | CAN bus (RS485 can be customized) | Fully Isolated | Support | Support(CAN) | 5V/3.3V | 50-500 Hz | 1040-1940 us | Non-calibratable | Support（CAN+PWM） | Support,Custom motor required | IP55 (customizable to IP67) |

## 6. User Guide

6.1Precautions

1.Do not exceed the recommended operating voltage range of the ESC, otherwise it may cause irreversible damage to the ESC.

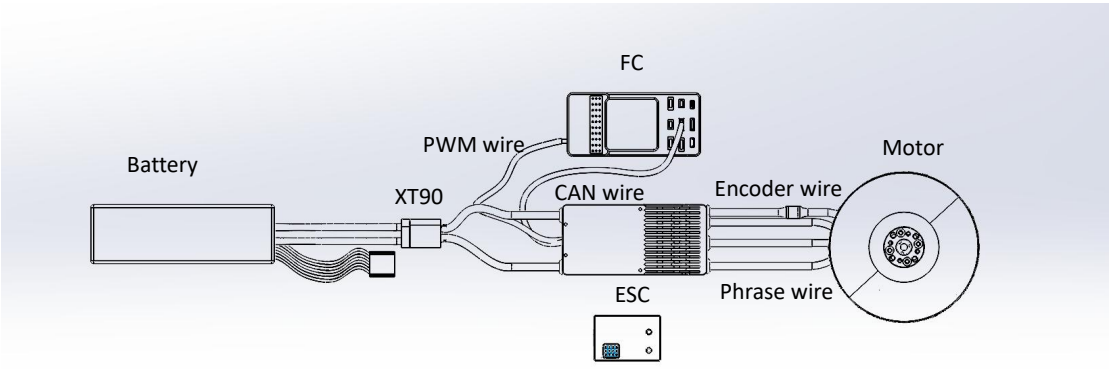
2.This ESC throttle has been solidified and does not require throttle calibration. The throttle stroke is 1040-1940us.

3. The FOC ESC features braking effect and reverse voltage. Please ensure the use of power equipment capable of absorbing reverse voltage during ESC testing or flight to avoid damage to the ESC and power supply.

4.The ESC supports both PWM and CAN throttle modes, with the ability to set which mode takes priority while the other serves as a backup. Upon startup, the throttle must be connected to the ESC to ensure normal operation. The backup throttle mode only becomes effective if the primary throttle mode fails during operation. The factory default setting is PWM throttle priority. If you need to change to CAN throttle priority, please contact the manufacturer or use the upper computer for settings.

5. If using the rotor lock mode, it is strictly forbidden to change the connection order of the three-phase wires with the motor, and ensure that the encoder wires do not become detached.

6.2Wiring diagram




VLINK(During debugging, connect the CAN wire.)

1) The 2P-JR connector is the PWM throttle input line, with the white line as the throttle signal line and the black line as the ground wire.
2) The 3P-JR connector is the CAN throttle input line, with the green line as CAN-L, the yellow line as CAN-H, and the gray line as the ground wire.
3) The M6 aviation connector is the encoder wire, which can be connected to the motor encoder wire to enable the fixed-pitch function.

## 7. Normal Power-on Process

1) Turn on the radio and set the throttle stick to the minimum position.
2) Connect the system to the battery. When the motor emits a beep, it indicates that the system is ready, and the self-check is complete, making it ready for takeoff.

## 8.Protection Function Description

This series of ESCs is designed for industrial drones, with no low voltage protection and over-temperature protection.

1) Stall protection

When the ESC detects that the motor stall, the ESC will completely shut down the output and report the fault after 5 seconds. If the motor stall fault is cleared, the motor can be restarted by setting the throttle to zero and then resuming the output.

2) Current Protection

40A/60A/80A:When the surge current exceeds 200A, the ESC will reboot three times. If the current remains abnormal, it will immediately cut off the output. Normal operation resumes after repowering.

120A/150A/200A:When the surge current exceeds 280A, the ESC will reboot three times. If the current remains abnormal, it will immediately cut off the output. Normal operation resumes after repowering.

3) Temperature Warning

When the MOSFET or capacitor temperature exceeds 110° C, a temperature warning message will be sent via the CAN communication interface. If the temperature continues to rise after the warning, it may cause irreversible damage to the electronic components. Please land immediately or reduce the throttle output.

4) Low voltage warning

This series of ESCs does not have low voltage protection. When the voltage drops below 18V or Rises above 63V, some electronic components of the ESC may malfunction. Please land promptly.

5) Throttle signal loss protection

When the ESC detects a loss of throttle signal and there is a backup throttle, the ESC will immediately respond to the backup throttle's output. When the ESC detects a loss of throttle signal but there is no backup throttle, the ESC will continue to output with the last received throttle signal for 2 seconds. If a throttle signal is received within those 2 seconds, the ESC will continue to respond. If no throttle signal is received within 2 seconds, the output will be shut down, and the ESC needs to be re-powered to restore functionality.

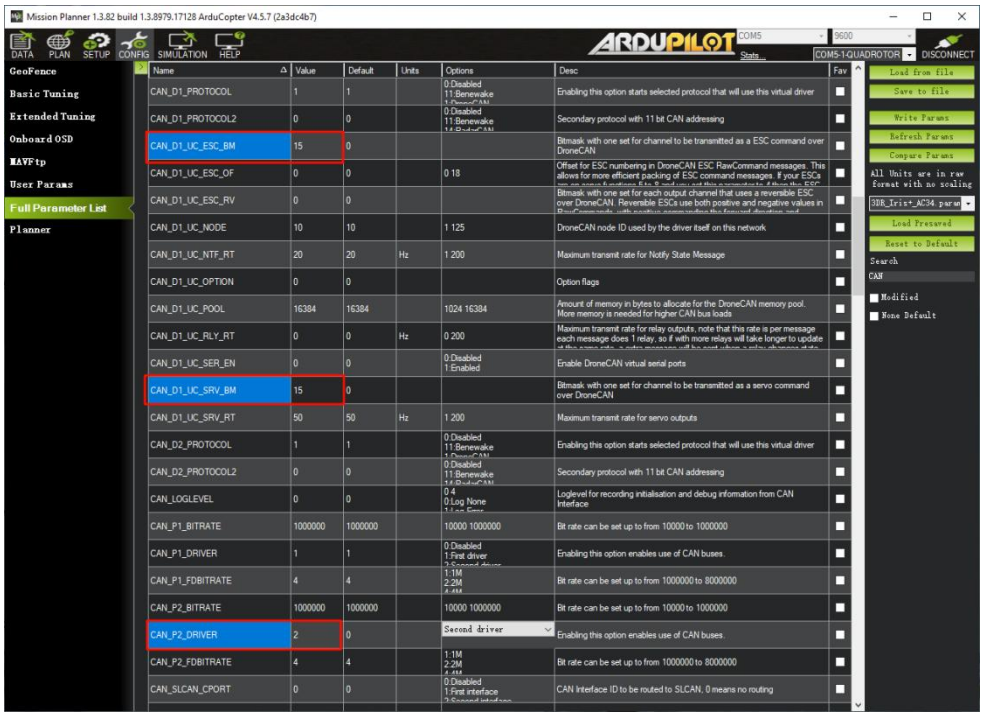
## 9.Common Faults and Alert Tones Description

| Fault Phenomena | Alarm | Possible cause | Solution |
|---|---|---|---|
| After powering on, the motor fails to start | Rapid single-tone "beep beep beep..." | Throttle not at zero position | Move the throttle to the lowest position or Change throttle Minimum value to 1040us |
| After powering on, the motor fails to start | “Beep, beep, beep...” (with a 1-second interval between each beep) | The receiver's throttle channel is not outputting a throttle signal | 1. Check if the radio and receiver are paired correctly.<br>2. Check if the throttle channel wiring is connected properly.<br>3. Verify the ESC communication priority (factory default is PWM). |

| | | | |
|---|---|---|---|
| The power supply voltage is either below 18V or above 63V. | "Beep beep, beep beep" (with 1-second intervals) | Battery voltage failure | Replace with a suitable fully charged battery |
| Motor stops or restarts in the air | | Motor and ESC are incompatible | Replace the motor or change the propeller |
| During motor self-test, no sound, but the motor can rotate | During motor self-test, no sound, but the motor can rotate | Driver failure | 1. Replace the ESC<br>2. Return to factory for repair |
| Motor fails to start normally, accompanied by a "clicking" or "thumping" sound | During motor self-test, no sound, but the motor can not rotate | Motor phase missing | 1. Check phase line connections<br>2. Check the motor<br>3. If the motor and connections are fine, contact after-sales service for factory repair |

## 10.Mission Planner (APM Firmware) Connecting to the ESC

⚠ Warning: When changing the ID, ensure the propeller is disassembled to avoid potential hazards. In the same aircraft, multiple ESCs must be assigned different IDs; otherwise, issues such as throttle control confusion may occur.




Note! Before using the flight controller to control the ESC, you need to make some simple settings:

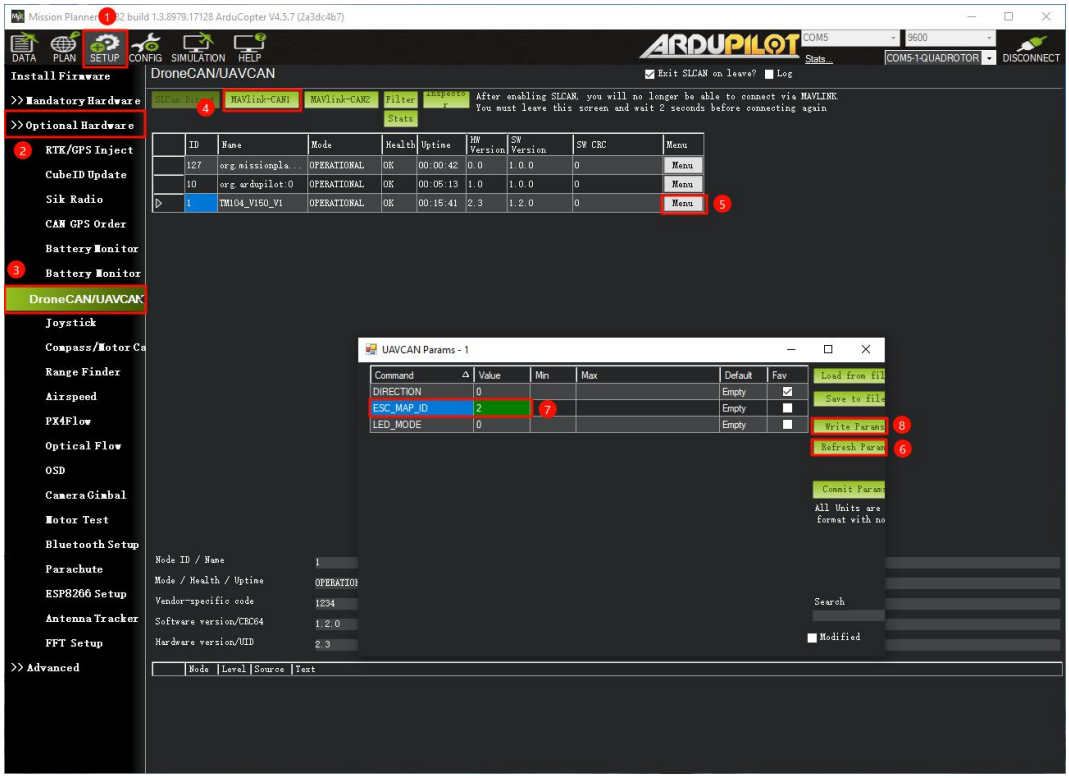
Set the value of CAN_D1_UC_ESC_BM to 15.

Set the value of CAN_D1_UC_SRV_BM to 15.

Set the value of CAN_P2_DRIVER to 2

(Current Mission Planner version: 1.3.8479.20539, Flight Controller firmware version: V4.3.7)

## 10.1 Setting the ESC ID




(1)Click on "Initial Setup".

(2)Click on "Optional Hardware".

(3)Click on "DroneCAN/UAVCAN".

(4)Click on "MAVlink-CAN1" to search for the CAN device connected to the flight controller.

Note! If the ESC's CAN wire is connected to the flight controller's CAN1 port, click "MAVlink-CAN1". If the ESC's CAN wire is connected to the flight controller's CAN2 port, click "MAVlink-CAN2".

(5)Select the ESC you want to set, click on "Menu", then click on "Parameters" to open the ESC parameter interface.

(6)Click on "Refresh Parameters".

(7)Modify "ESC_MAP_ID" and change the value to the desired ESC ID.

(8)Click on "Write Parameters" to complete the ESC ID modification.

## 10.2 CAN Throttle Testing


(1)Click on "Initial Setup".

(2)Click on "Optional Hardware".

(3)Click on "Motor Test".

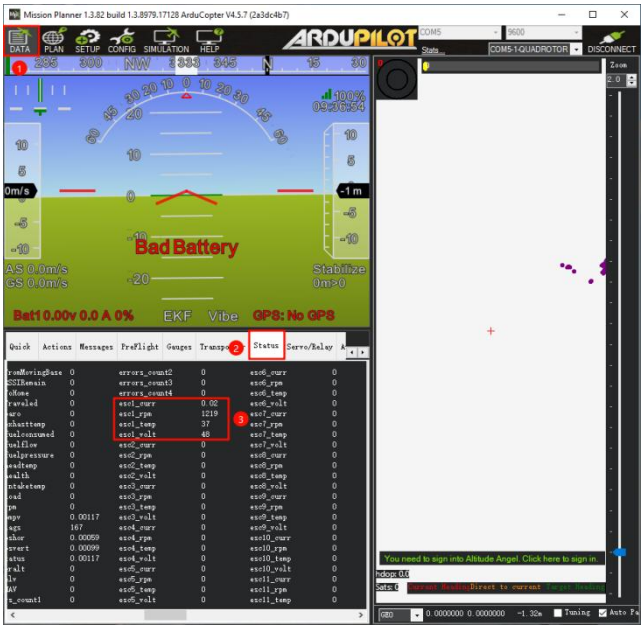
(4)Input motor test throttle, e.g. 10%.

(5)Input the test duration, e.g. 4s.

(6)Click "Test Motor A" (Motor A corresponds to the ESC ID is 1), you can see that the motor is running;

## 10.3 ESC status monitor

In the status bar, you can view data for ESC 1 under the throttle action, including current (esc1_curr), RPM (escl_rpm), temperature (esc1_temp), voltage (esc1_volt), and more.



## 11.QGround Control (PX4 Firmware) Connecting to the ESC

⚠ Warning: When changing the ID, ensure the propeller is disassembled to avoid potential hazards. In the same aircraft, multiple ESCs must be assigned different IDs; otherwise, issues such as throttle control confusion may occur.

Parameter Configuration

Set UAVCAN_BITRATE to 1000000.

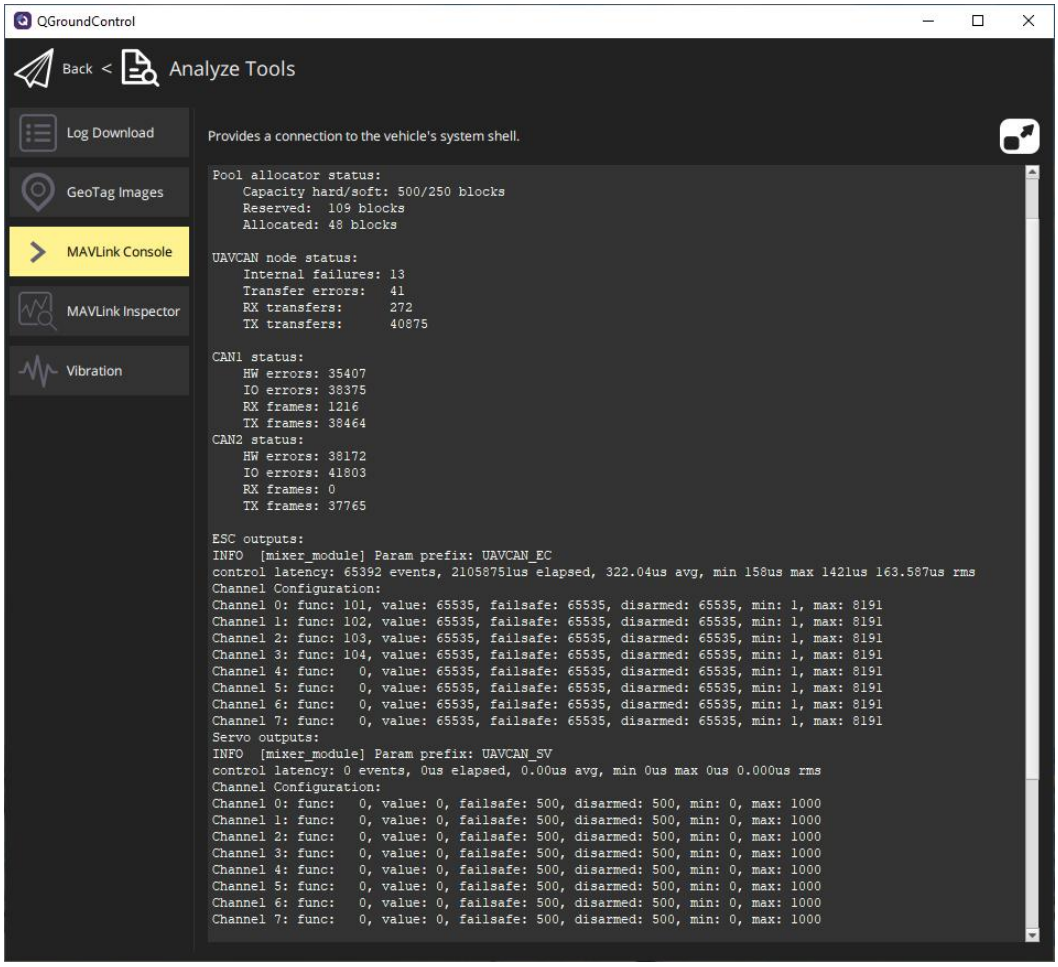
UAVCAN_ENABLE configures Sensors and Actuators(ESCs)Automatic Config.

| | | |
|---|---|---|
| UAVCAN_BITRATE | 1000000 bit/s | UAVCAN CAN bus bitrate |
| UAVCAN_ENABLE | Sensors and Actuators (ESCs | UAVCAN mode |
| UAVCAN_ESC_IDLT | Enabled | UAVCAN ESC will spin at idle throttle when armed, even if the mixer outputs zero setpoints |

Set SYS_CTRL_ALLOC to Enabled to activate the CAN dynamic ID allocation function. The PX4 CAN dynamic ID allocation function requires an SD card; otherwise, PX4 cannot dynamically assign CAN node IDs to CAN devices.

| | | |
|---|---|---|
| SYS_CTRL_ALLOC | Enabled | Enable Dynamic Control Allocation |

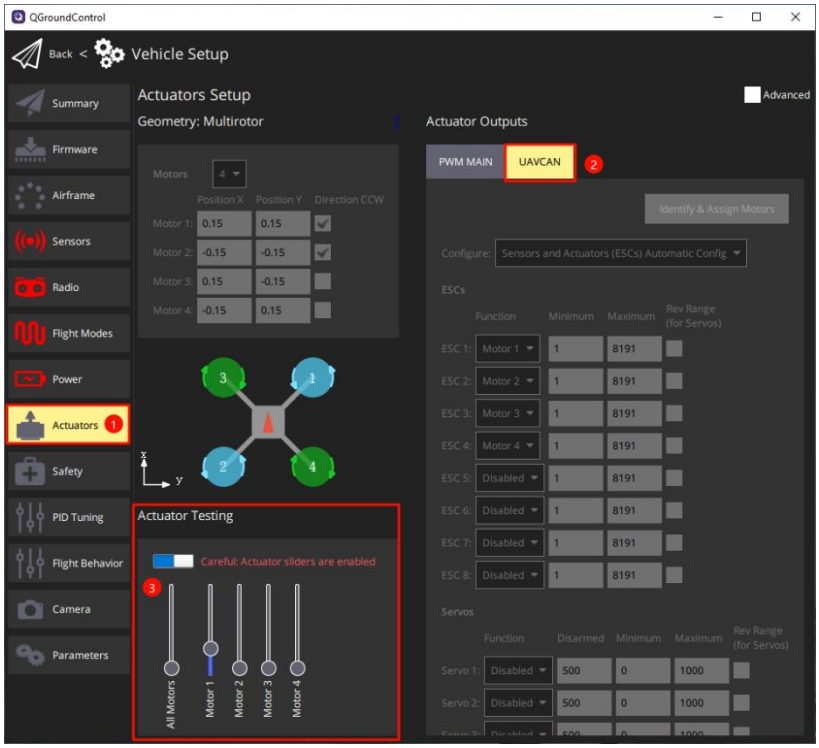
After configuring the above parameters, reboot PX4. Enter “uavcan status” in the Mavlink console to view CAN port status and connected devices.



11.1 CAN Throttle Testing

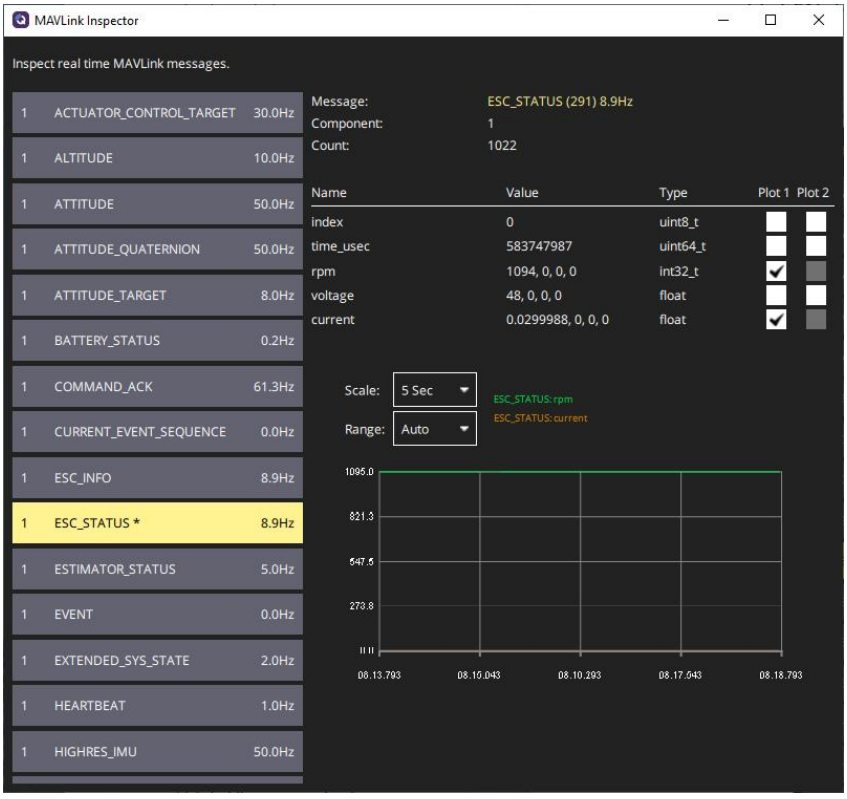
(1)Set the **Actuators Outputs** tab to define the ESC-motor mapping and adjust the throttle's max/min values.

(2)Enable the **Actuator Testing tab**, then use the slider for the target motor to vary its throttle.




11.2 ESC status monitor

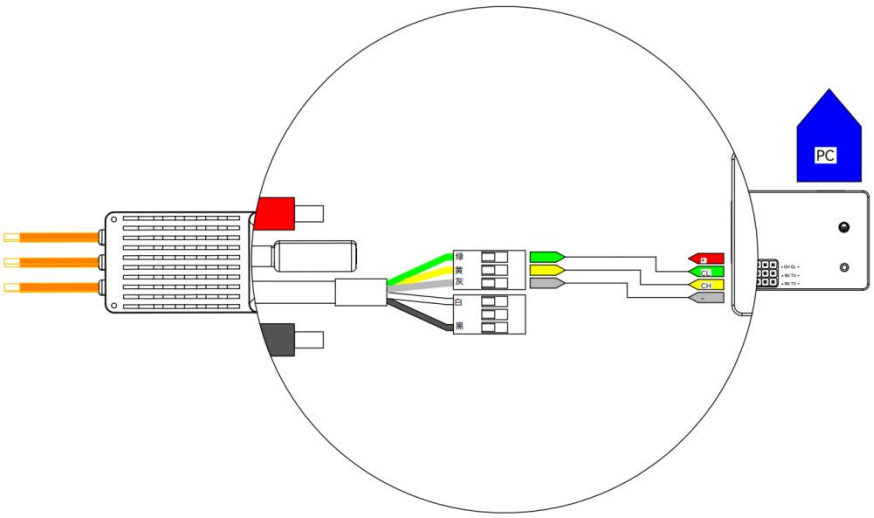
View Mavlink messages; the ESC_STATUS message contains ESC RPM, voltage, current, etc. Check the plotting option to view the trend curves of these data over time.



## 12.Setting the ID via the upper computer

⚠ Warning: When changing the ID, ensure the propeller is disassembled to avoid potential hazards. In the same aircraft, multiple ESCs must be assigned different IDs; otherwise, issues such as throttle control confusion may occur.

12.1Connection




Note: This feature requires the purchase of V-link.

1.By default, the ESC factory settings are: ID = 1, throttle channel = 1, and baud rate = 1 MHz.

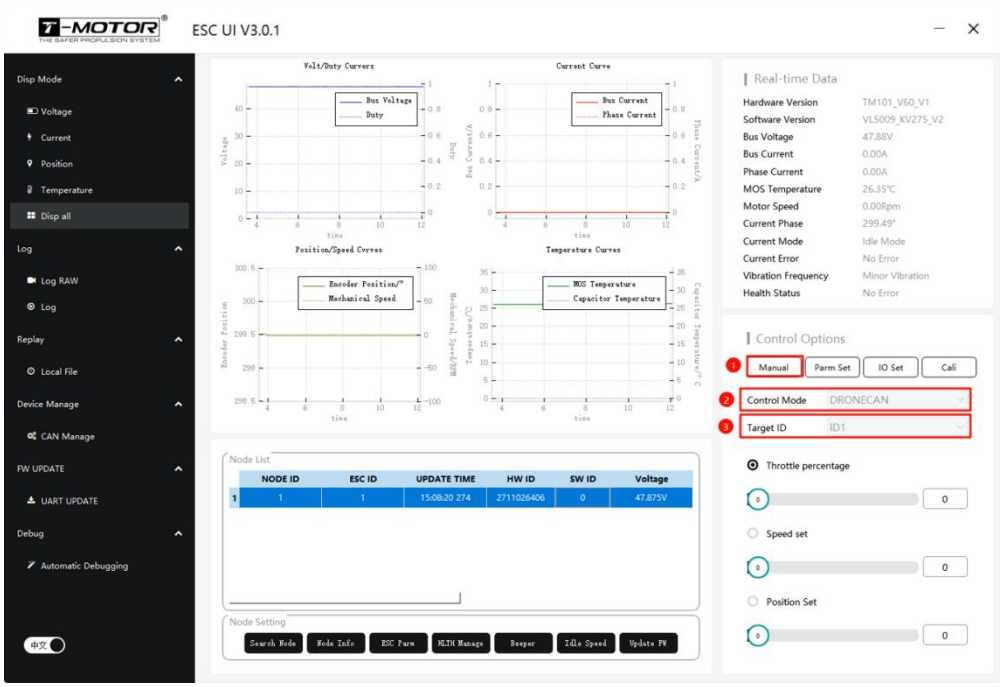
2.Warning: Disconnect the propeller during setup to avoid hazards.

3.Warning: On the same vehicle, different ESCs must have unique IDs; otherwise, those with the same ID will be recognized as a single ESC when using CAN functions.

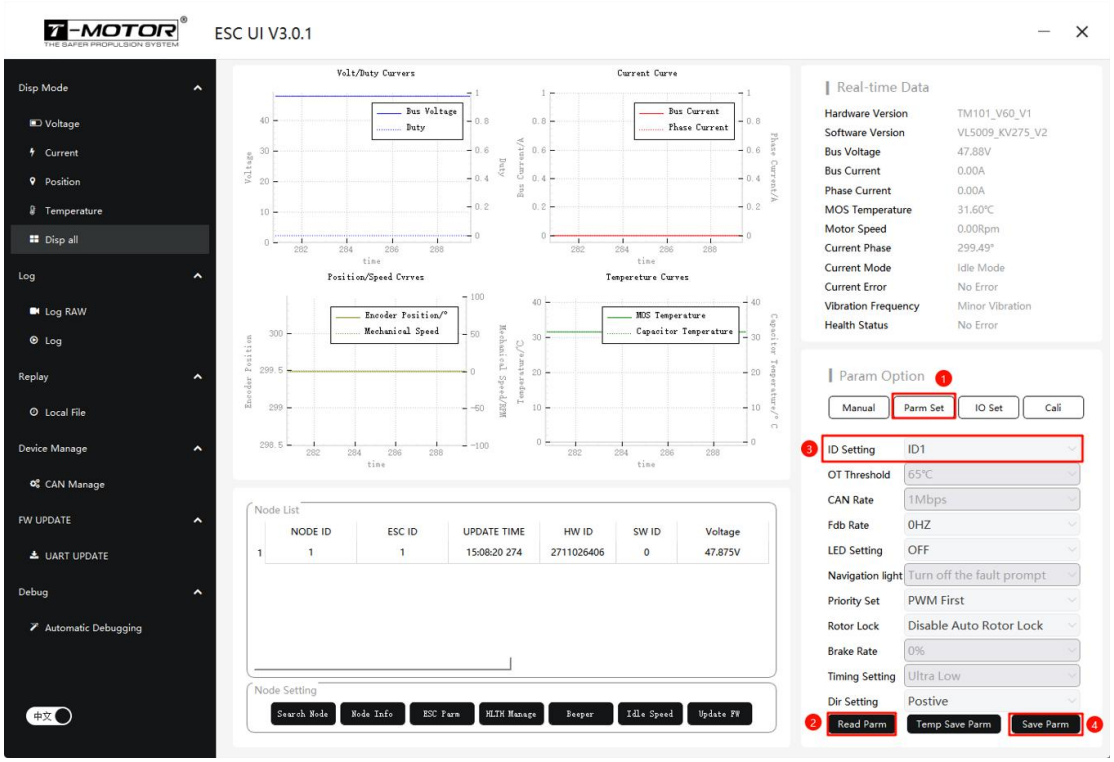
ESC---->V-Link “Green Yellow Gray” ----> “CL CH -”

Connect the V-Link to the computer via USB.

Run the upper computer software to enter the ESC manual control interface, select DroneCan control and the correct ESC ID.



## 12.2Operation




1) Click "Parameter Settings."
2) Click "Read Parameters." If successful, the following prompt will appear:


3) Click "ID Settings" and select the ID you want to change.
4) Click "Save Settings." If the save is successful, the following prompt will appear:

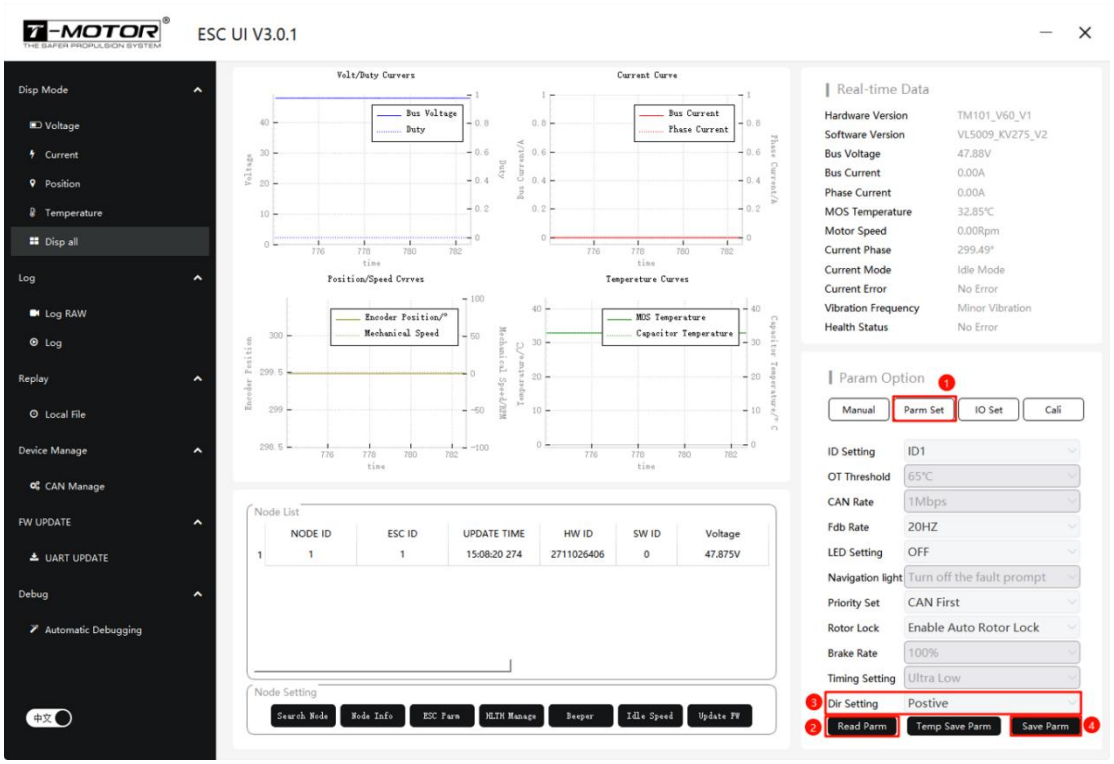
## 13.Rotation direction setting

⚠ Warning! When changing the motor rotation direction, check the propeller's rotation direction on the installed motor.

### 13.1Connection

Refer to Section 12.1 of this user manual to connect the device. Run the the upper computer software, enter the ESC manual control interface, select DroneCan control, and choose the correct ESC ID.

### 13.2Operation




1) Click on "Parameter Settings".
2) Click "Read Parameters". If the read is successful, the following prompt will app


3) Click on "Rotation Direction Setting" and select the desired rotation direction for modification.
4) Click "Save Settings". If the save is successful, the following prompt will appear:

## 14.Encoder Calibration

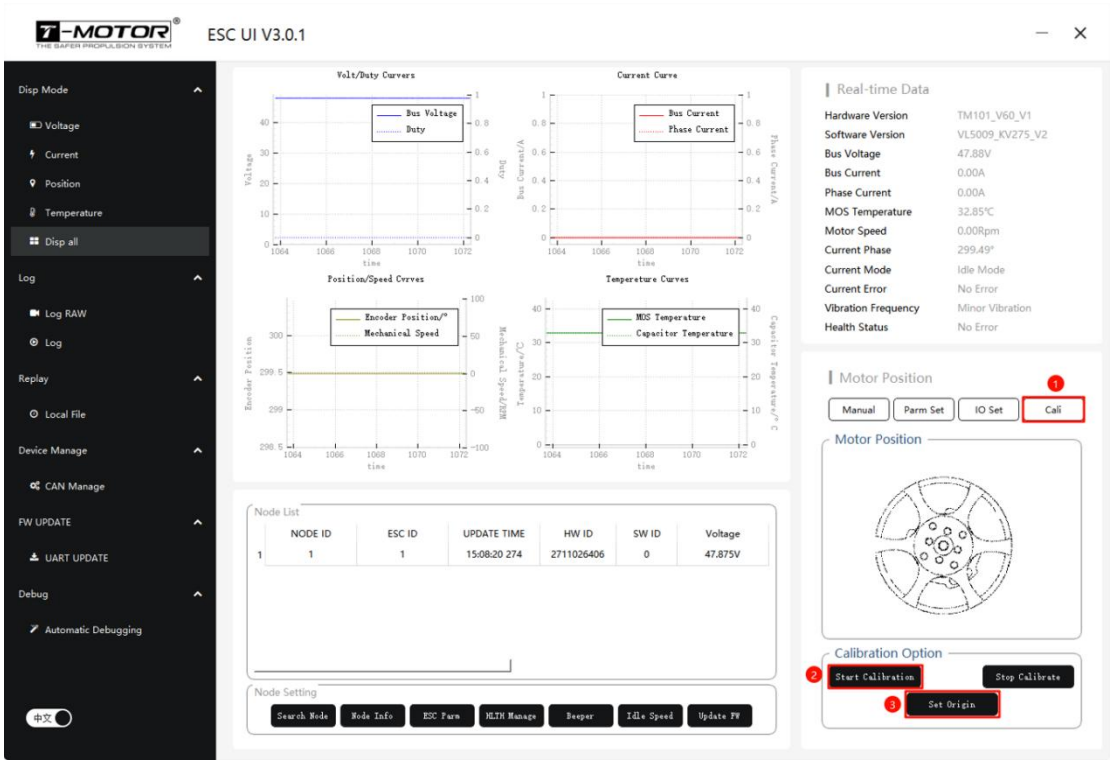
⚠ Warning! After calibrating the encoder, the three-phase wires must not be rewired, and ensure that the three-phase wires and encoder cables are properly connected.

### 14.1Connection

Refer to Section 12.1 of this user manual to connect the device. Run the the upper computer software, enter the ESC manual control interface, select DroneCan control, and choose the correct ESC ID.

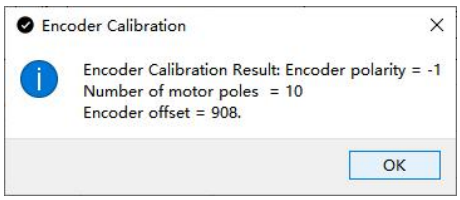
### 14.2Operation

⚠ Warning! When clicking "Start Calibration", the motor will rotate slowly. Do not install the propeller to avoid unnecessary risks.

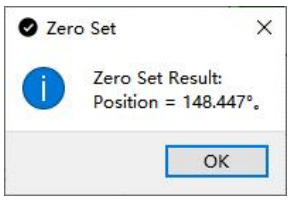



1) Click on "Calibrate".

2) Click on "Start Calibration". If the calibration is successful, the following prompt will appear:




3) Click on "Set Home", and if the setting is successful, the following prompt will appear:



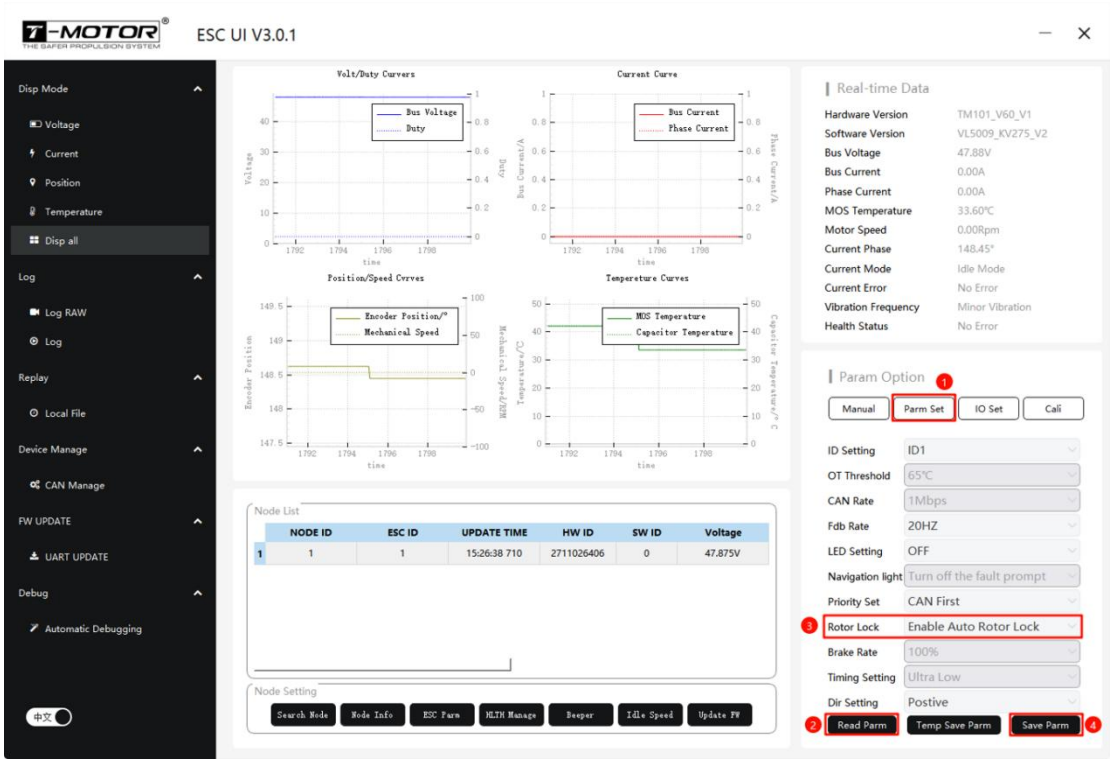
## 15.Rotor lock configuration

⚠：Warning! When using the motor idle stop lock function for the first time, ensure that the encoder is calibrated correctly, and the connection of the three-phase wires and encoder wires is secure. Do not install the propeller during this process.

15.1Connection

Refer to Section 12.1 of this user manual to connect the device. Run the the upper computer software, enter the ESC manual control interface, select DroneCan control, and choose the correct ESC ID.

15.2Operation




1) Click "Parameter Settings".

2) Click "Read Parameters". If the read is successful, the following prompt will appear:


3) Click on "Rotor Lock" and select”Enable Auto Rotor Lock” or ”Disable Auto Rotor Lock”.

Note!Disable Auto Rotor Lock: The motor will not automatically enter Rotor Lock mode, but it can be controlled via CAN bus by sending any position command. The motor will hold the position specified by the command.

Enable Auto Rotor Lock: A PWM pulse width below 1080μs is idle, 1080 – 1120μs activates Rotor Lock mode (motor holds the configured origin position), and above 1120μs resumes normal PWM speed control.

4) Click "Save Settings". If the save is successful, the following prompt will appear:

## 16.Firmware Upgrade

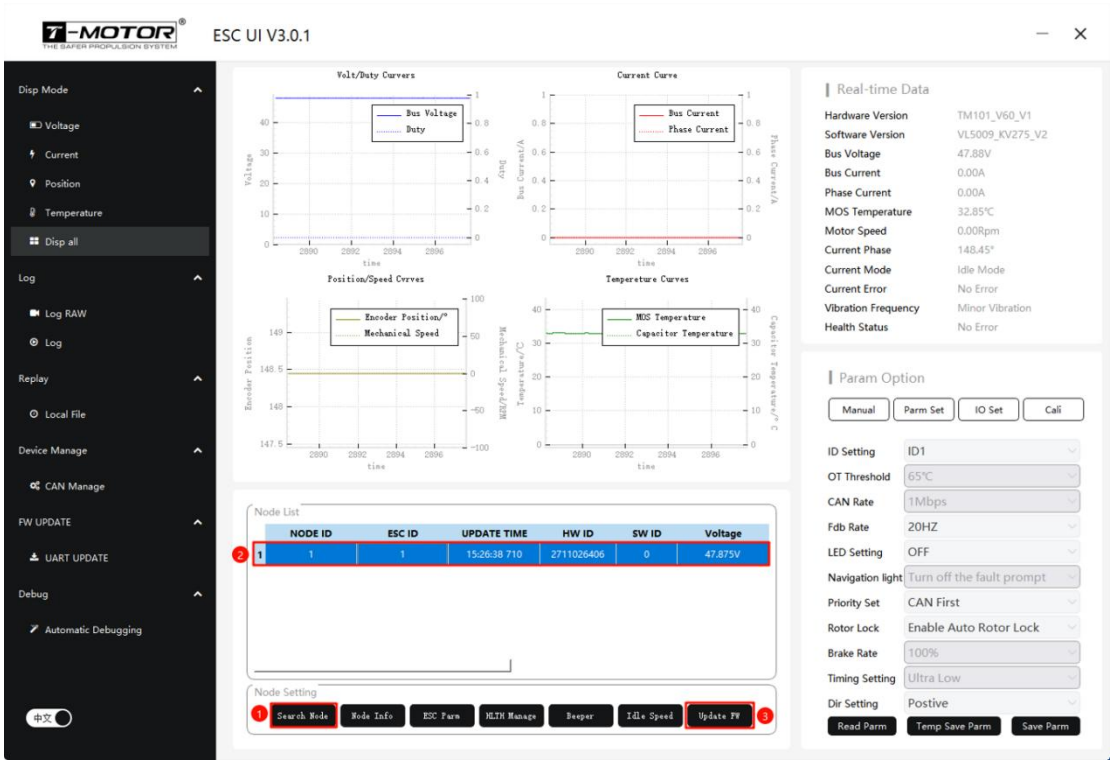
Firmware upgrade requires a V-link, a USB cable, and upper computer software. Multiple ESCs can be upgraded simultaneously.

Note: Obtain the upper computer software from the purchase source — official website, sales, or after-sales service.

### 16.1Connection

Refer to Section 12.1 of this user manual to connect the device. Run the the upper computer software, enter the ESC manual control interface, select DroneCan control, and choose the correct ESC ID.

### 16.2Operation

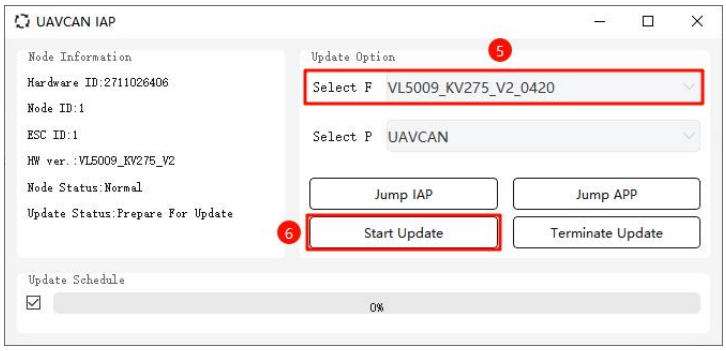



1） Click "CAN Device Management"；

2） Click "Search Nodes"；

3） Select ESC;

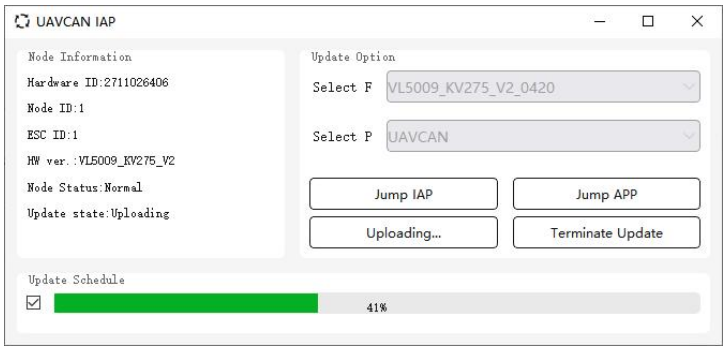
4） Click "Upgrade Node Firmware"



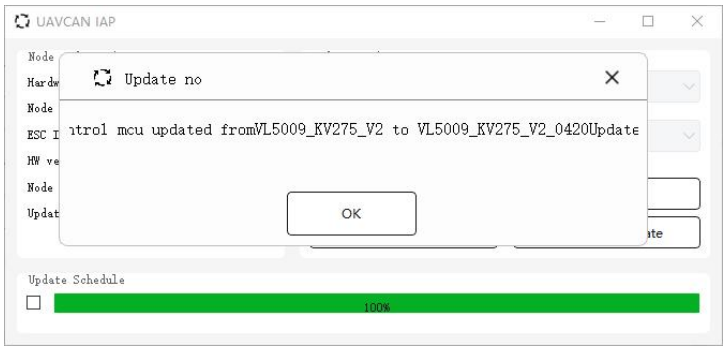
5） Select the corresponding firmware；

6） Click "Start Upgrade"；

7） Power cycle the ESC；




8） Wait for the progress bar to complete；




9） The update is complete when a prompt appears;

10） Click on the "ok", Power cycle the ESC, and check version update correctly.

**Note**: The upper computer software can upgrade multiple ESC firmware simultaneously.

**Hardware Setup**: Parallel the CAN bus of multiple ESCs.

**Software Setup**: Assign unique IDs to each ESC. Run the upper computer, enter the ESC Manual Control Interface, select DroneCan Control, and choose target IDs (ID1 – ID9). After selecting the firmware, click Start Upgrade.

**Process**:The ESCs will require multiple repowering cycles. Each power cycle allows firmware upgrade for one ESC. Repeat the process to complete upgrades for all connected ESCs.

## 17.CAN protocol related

The ESC uses the DroneCAN protocol common in the drone industry, which can be configured and modified via the upper computer or DroneCAN GUI TOOL.

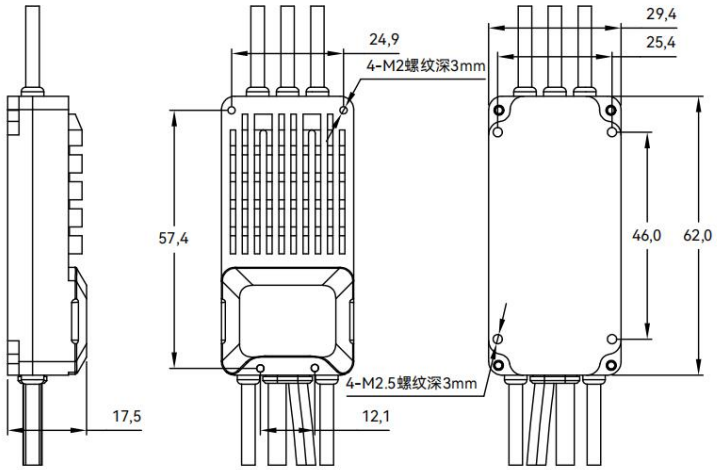
The ESC firmware can only be updated using the upper computer software; updates via other devices are not currently supported.

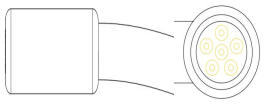
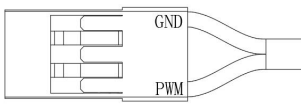
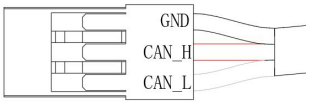
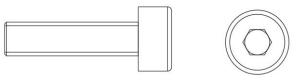
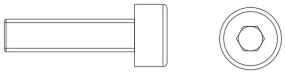
CAN Protocol Reference: <TM_UAVCAN_V2.3>

Related Protocol SourceCode: https://github.com/dronecan/DSDL/tree/master/com/tmotor/esc

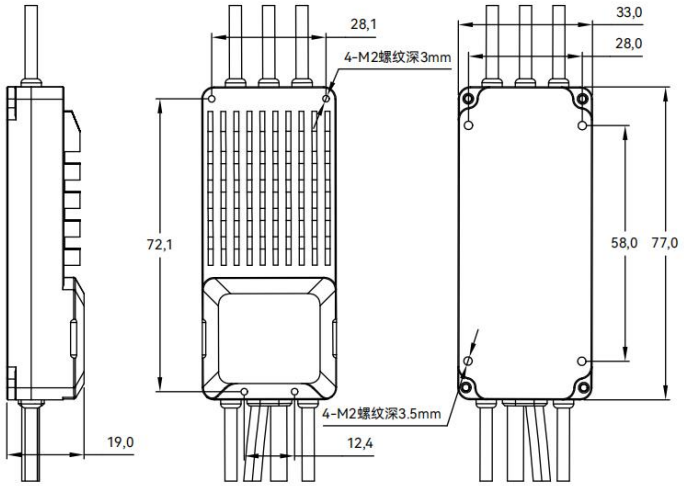
## 18.Appendix

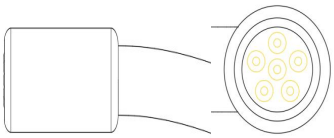
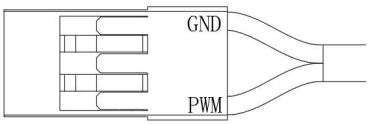
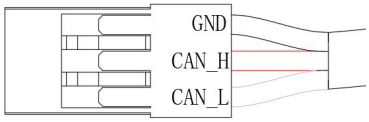
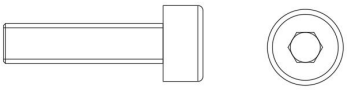
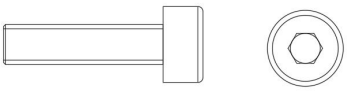
# V-40A-14S



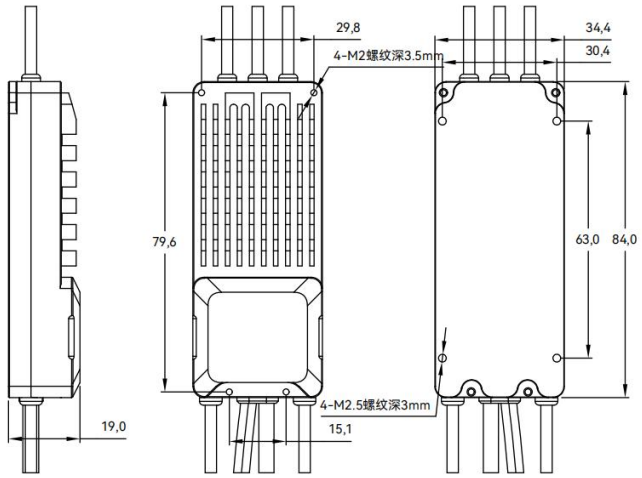

| Serial number | Component name | Description | Unit | Quantity | Diagram |
|---|---|---|---|---|---|
| ① | Power supply positive | silicone wire-Red-14AWG-150mm | PCS | 1 |   |
| ② | Power supply negative | silicone wire-Black-14AWG-150mm | PCS | 1 |   |
| ③ | Three-phase | silicone wire-Orange-16AWG-65mm | PCS | 3 |   |
| ④ | Encoder | UL2547-24AWG*5C-Black-300mm-5-M6-6-core aviation plug female | PCS | 1 |  |
| ⑤ | PWM Wire | Shielded wire -Black-300mm-1-JR-3P-Black-Blank-White | PCS | 1 |   |
| ⑥ | CAN Wire | hielded wire -Black-300mm-1-JR-3P-Green-Yellow-Gray | PCS | 1 |   |
| ⑦ | ESC mounting hole 1 | M2.5 threaded hole, depth 4mm | PCS | 4 |  |
| ⑧ | ESC mounting hole 2 | M3 threaded hole, depth 4mm | PCS | 4 |  |

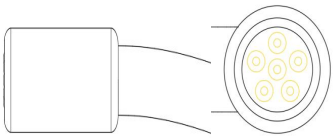
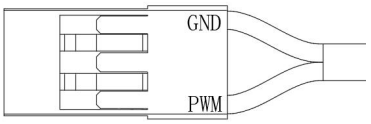
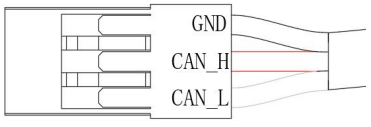
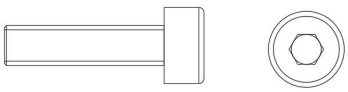
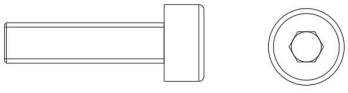
# V-60A-14S



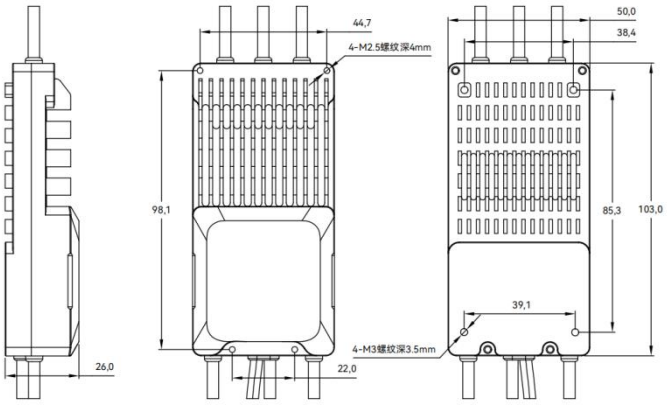

| Serial number | Component name | Description | Unit | Quantity | Diagram |
|---|---|---|---|---|---|
| ① | Power supply positive | Slicon-Red-14AWG-160mm | PCS | 1 |   |
| ② | Power supply negative | silicone wire-Black-14AWG-160mm | PCS | 1 |   |
| ③ | Three-phase | silicone wire-Orange-16AWG-60mm | PCS | 3 |   |
| ④ | Encoder | UL2547-24AWG*5C-Black-300mm-5-M6-6-core aviation plug female | PCS | 1 |  |
| ⑤ | PWM Wire | Shielded wire -Black-300mm-1-JR-3P-Black-Blank-White | PCS | 1 |   |
| ⑥ | CAN Wire | Shielded wire -Black-300mm-1-JR-3P-Green-Yellow-Gray | PCS | 1 |   |
| ⑦ | ESC mounting hole 1 | M2.5 threaded hole, depth 4mm | PCS | 4 |  |
| ⑧ | ESC mounting hole 2 | M3 threaded hole, depth 4mm | PCS | 4 |  |

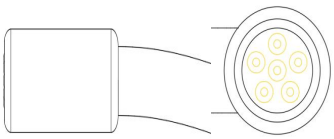
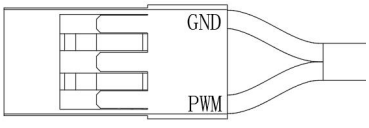
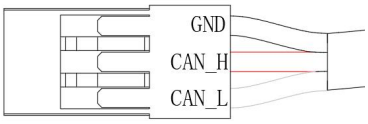
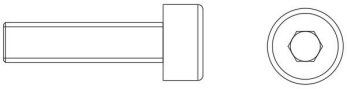
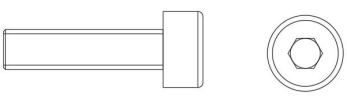
# V-80A-14S



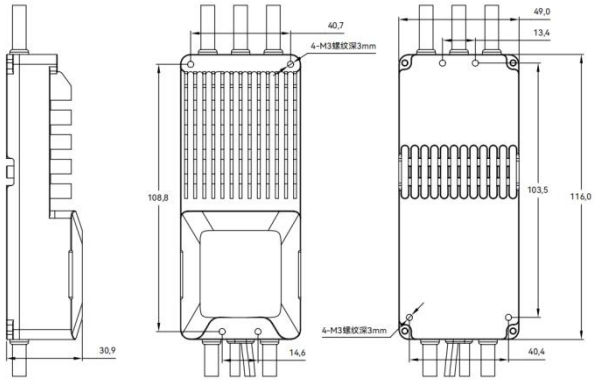

| Serial number | Component name | Description | Unit | Quantity | Diagram |
|---|---|---|---|---|---|
| ① | Power supply positive | silicone wire-Red-12AWG-180mm | PCS | 1 |   |
| ② | Power supply negative | silicone wire-Black-12AWG-180mm | PCS | 1 |   |
| ③ | Three-phase | silicone wire-Orange-14AWG-110mm | PCS | 3 |   |
| ④ | Encoder | UL2547-24AWG*5C-Black-450mm-5-M6-6-core aviation plug female | PCS | 1 |  |
| ⑤ | PWM Wire | Shielded wire -Black-450mm-1-JR-3P-Black-Blank-White | PCS | 1 |   |
| ⑥ | CAN Wire | Shielded wire -Black-450mm-1-JR-3P-Green-Yellow-Gray | PCS | 1 |   |
| ⑦ | ESC mounting hole 1 | M2.5 threaded hole, depth 4mm | PCS | 4 |  |
| ⑧ | ESC mounting hole 2 | M3 threaded hole, depth 4mm | PCS | 4 |  |

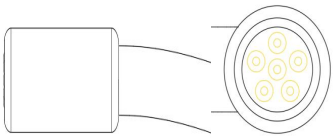
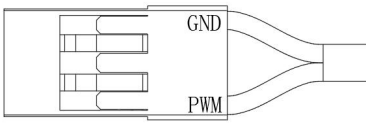
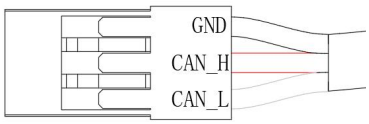
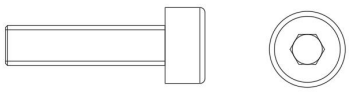
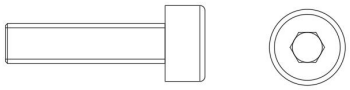
# V-120A-14S



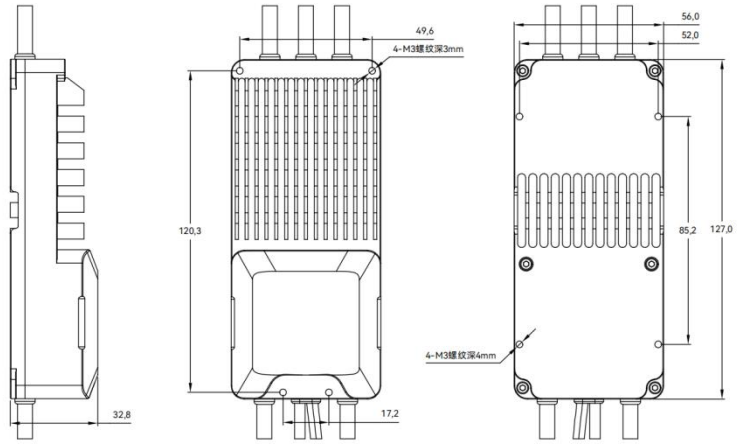

| Serial number | Component name | Description | Unit | Quantity | Diagram |
|---|---|---|---|---|---|
| ① | Power supply positive | silicone wire-Red-12AWG-120mm | PCS | 1 |   |
| ② | Power supply negative | silicone wire-Black-12AWG-120mm | PCS | 1 |   |
| ③ | Three-phase | silicone wire-Orange-12AWG-75mm | PCS | 3 |   |
| ④ | Encoder | UL2547-24AWG*5C-Black-420mm-5-M6-6-core aviation plug female | PCS | 1 |  |
| ⑤ | PWM Wire | Shielded wire -Black-470mm-1-JR-3P-Black-Blank-White | PCS | 1 |   |
| ⑥ | CAN Wire | Shielded wire -Black-470mm-1-JR-3P-Green-Yellow-Gray | PCS | 1 |   |
| ⑦ | ESC mounting hole 1 | M2.5 threaded hole, depth 4mm | PCS | 4 |  |
| ⑧ | ESC mounting hole 2 | M3 threaded hole, depth 4mm | PCS | 4 |  |

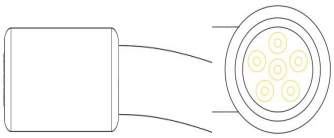
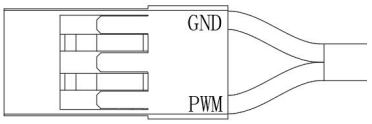
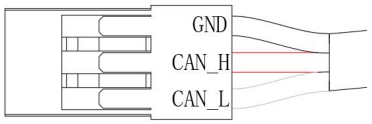
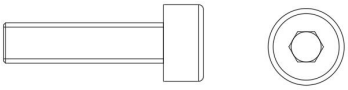
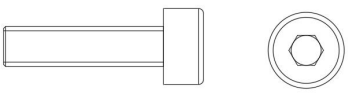
# V-150A-14S



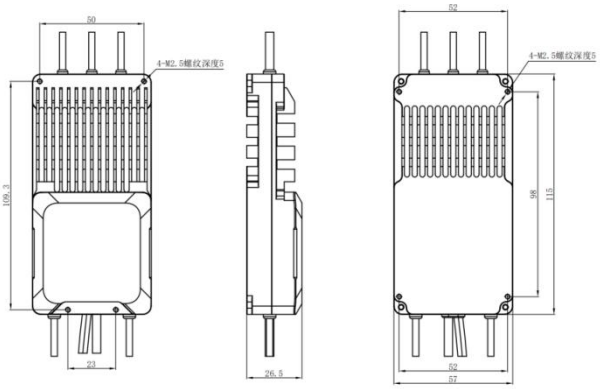

| Serial number | Component name | Description | Unit | Quantity | Diagram |
|---|---|---|---|---|---|
| ① | Power supply positive | silicone wire-Red-10AWG-130mm | PCS | 1 |   |
| ② | Power supply negative | silicone wire-Black-10AWG-130mm | PCS | 1 |   |
| ③ | Three-phase | silicone wire-Orange-10AWG-100mm | PCS | 3 |   |
| ④ | Encoder | UL2547-24AWG*5C-Black-400mm-5-M6-6-core aviation plug female | PCS | 1 |  |
| ⑤ | PWM Wire | Shielded wire-Black-465mm-1-JR-3P-Black-Blank-White | PCS | 1 |   |
| ⑥ | CAN Wire | Shielded wire-Black-465mm-1-JR-3P-Green-Yellow-Gray | PCS | 1 |   |
| ⑦ | ESC mounting hole 1 | M3threaded hole, depth 3mm | PCS | 4 |  |
| ⑧ | ESC mounting hole 2 | M3 threaded hole, depth 4mm | PCS | 4 |  |

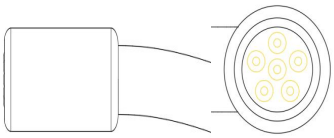
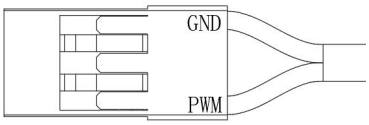
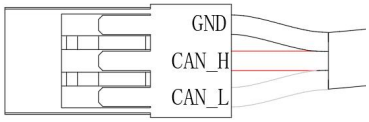
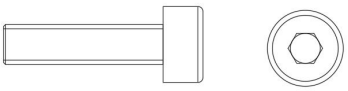
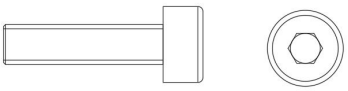
# V-200A-14S



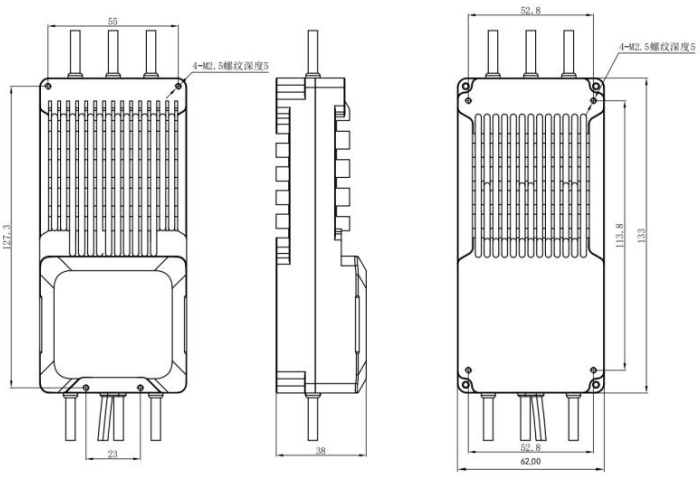

| Serial number | Component name | Description | Unit | Quantity | Diagram |
|---|---|---|---|---|---|
| ① | Power supply positive | silicone wire-Red-10AWG-1140mm | PCS | 1 |   |
| ② | Power supply negative | silicone wire-Black-10AWG-1140mm | PCS | 1 |   |
| ③ | Three-phase | silicone wire-Orange-10WG-205mm | PCS | 3 |   |
| ④ | Encoder | UL2547-24AWG*5C-Black-395mm-5-M6-6-core aviation plug female | PCS | 1 |  |
| ⑤ | PWM Wire | Shielded wire -Black-770mm-1-JR-3P-Black-Blank-White | PCS | 1 |   |
| ⑥ | CAN Wire | Shielded wire -Black-770mm-1-JR-3P-Green-Yellow-Gray | PCS | 1 |   |
| ⑦ | ESC mounting hole 1 | M3threaded hole, depth 3mm | PCS | 4 |  |
| ⑧ | ESC mounting hole 2 | M3 threaded hole, depth 4mm | PCS | 4 |  |

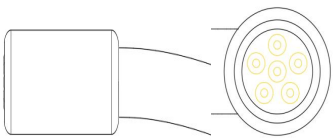
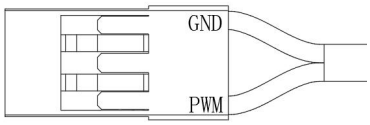
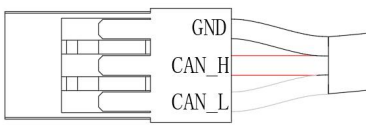
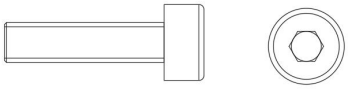
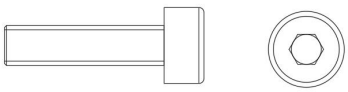
# V-60A-24S



| Serial number | Component name | Description | Unit | Quantity | Diagram |
|---|---|---|---|---|---|
| ① | Power supply positive | silicone wire-Red-14AWG-1200mm | PCS | 1 |   |
| ② | Power supply negative | silicone wire-Black-14AWG-1200mm | PCS | 1 |   |
| ③ | Three-phase | silicone wire-Orange-14WG-250mm | PCS | 3 |   |
| ④ | Encoder | UL2547-24AWG*5C-Black-420mm-5-M6-6-core aviation plug female | PCS | 1 |  |
| ⑤ | PWM Wire | Shielded wire -Black-330mm-1-JR-3P-Black-Blank-White | PCS | 1 |   |
| ⑥ | CAN Wire | Shielded wire -Black-330mm-1-JR-3P-Green-Yellow-Gray | PCS | 1 |   |
| ⑦ | ESC mounting hole 1 | M2.5threaded hole, depth 5mm | PCS | 4 |  |
| ⑧ | ESC mounting hole 2 | M2.5 threaded hole, depth 5mm | PCS | 4 |  |

# V-120A-24S




| Serial number | Component name | Description | Unit | Quantity | Diagram |
|---|---|---|---|---|---|
| ① | Power supply positive | silicone wire-Red-12AWG-1200mm | PCS | 1 |   |
| ② | Power supply negative | silicone wire-Black-12AWG-1200mm | PCS | 1 |   |
| ③ | Three-phase | silicone wire-Orange-14WG-250mm | PCS | 3 |   |
| ④ | Encoder | UL2547-24AWG*5C-Black-420mm-5-M6-6-core aviation plug female | PCS | 1 |  |
| ⑤ | PWM Wire | Shielded wire -Black-500mm-1-JR-3P-Black-Blank-White | PCS | 1 |   |
| ⑥ | CAN Wire | Shielded wire -Black-500mm-1-JR-3P-Green-Yellow-Gray | PCS | 1 |   |
| ⑦ | ESC mounting hole 1 | M2.5threaded hole, depth 5mm | PCS | 4 |  |
| ⑧ | ESC mounting hole 2 | M2.5 threaded hole, depth 5mm | PCS | 4 |  |