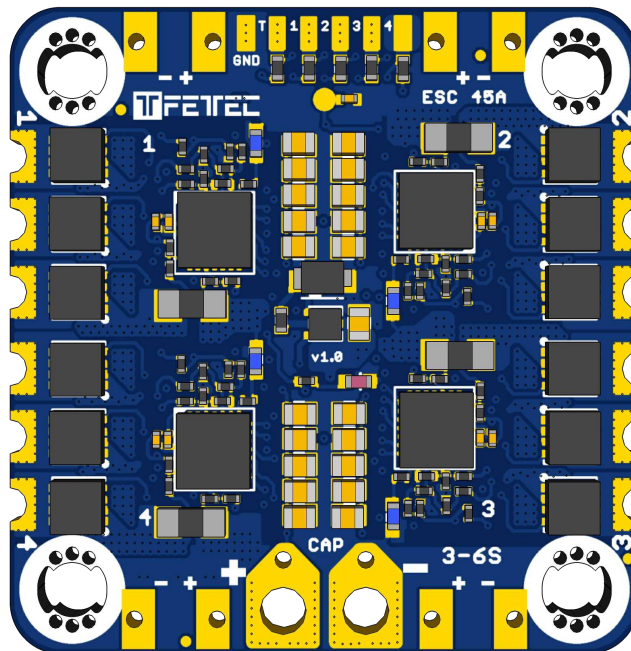




4in1 ESC 45A

Manual



You can find this manual online at www.fetec.net/downloads

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Introduction

Thank you for purchasing the FETtec ESC. This is a high-quality sensor-less brush-less electronic 4 in 1 speed control.

Features

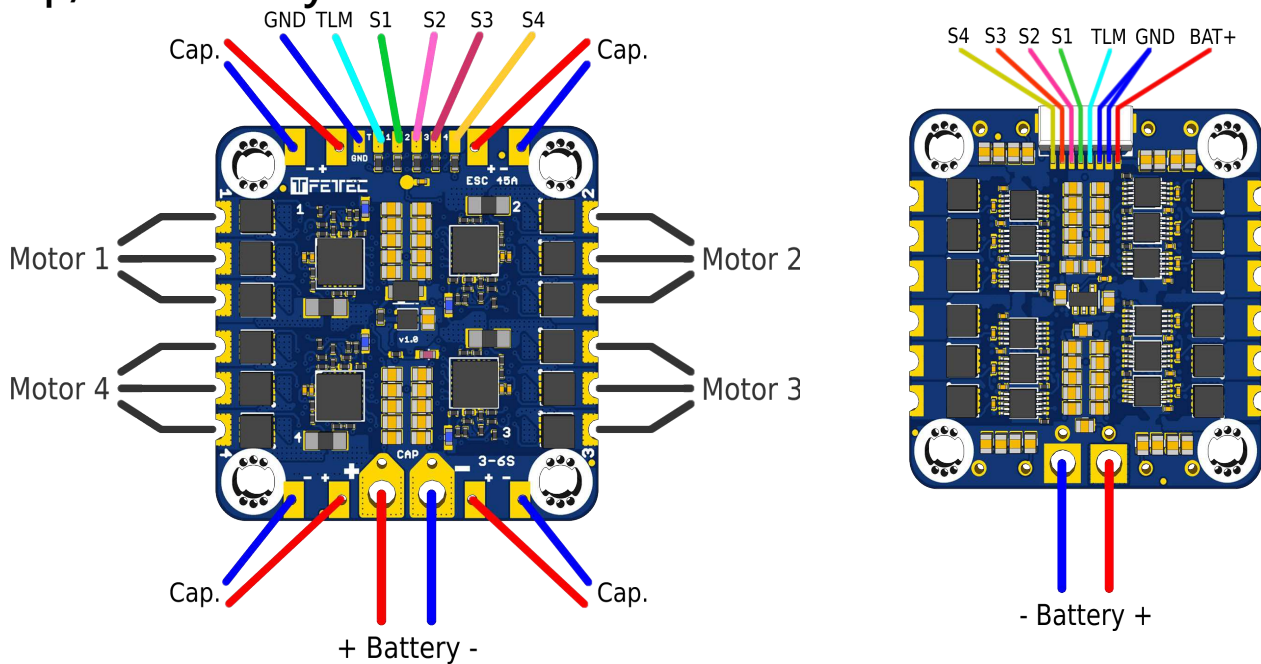
- Active current limiting @ 45A
- Input voltage: 3S-6S
- High quality 40V MOSFETs
- STM32G071 @ 64MHz
- 128 kHz Motor PWM
- Automatic input signal detection
 - Dshot 300-2400
 - PWM
 - OneShot 42/125
 - in development: Crossfire, OneWireBus, Sbus, Graupner HoTT
- Soldering holes for up to 5 additional capacitors (*required for 5S and 6S application*)
- KISS FC Passthrough
- Betaflight Passthrough (in development)

Safety warning

- Remove propeller before flashing and configuration!
- The ESC can heat up to 100°C and more
- Please ensure that there is enough space and airflow to prevent any damage because of overheating
- Please check periodically for firmware updates in the FETtec Configurator

Connection Diagram

Top/Bottom Layout

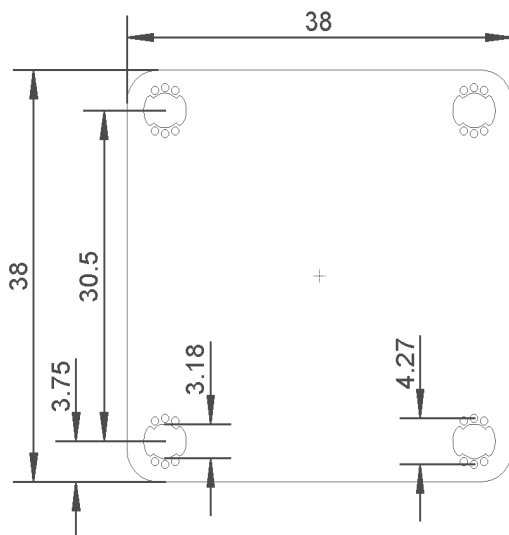


S1 – S4 – Motor Signal 1-4

TLM – Telemetry (Serial)

GND – Reference Signal Ground

Dimension (in mm)



The ESC comes with a 30,5x30,5mm mounting hole layout designed for M3 and M4 screws. Original is for M3 while you can use a screw driver and force it into M4 by rotating it inside the hole carefully.

Basic Setup

4S

For 4S usage please note that on 5" and higher builds the use of the supplied capacitor is advised. On 4" builds the capacitor is not required.

6S

For 6S usage an additional capacitor with the following specification is required. You can use either a single capacitor or use multiple ones which can be connected on each corner of the ESC.

Minimum 470uF

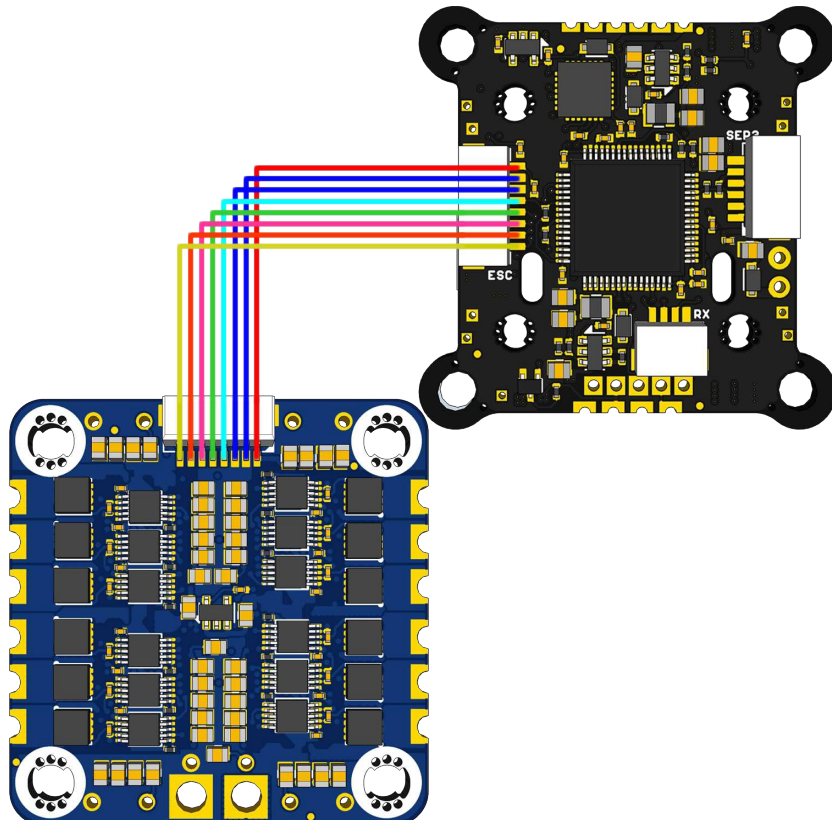
50V

ESR < 1ohm

We recommend to use the provided 477CKE050M capacitor.

FETtec FC

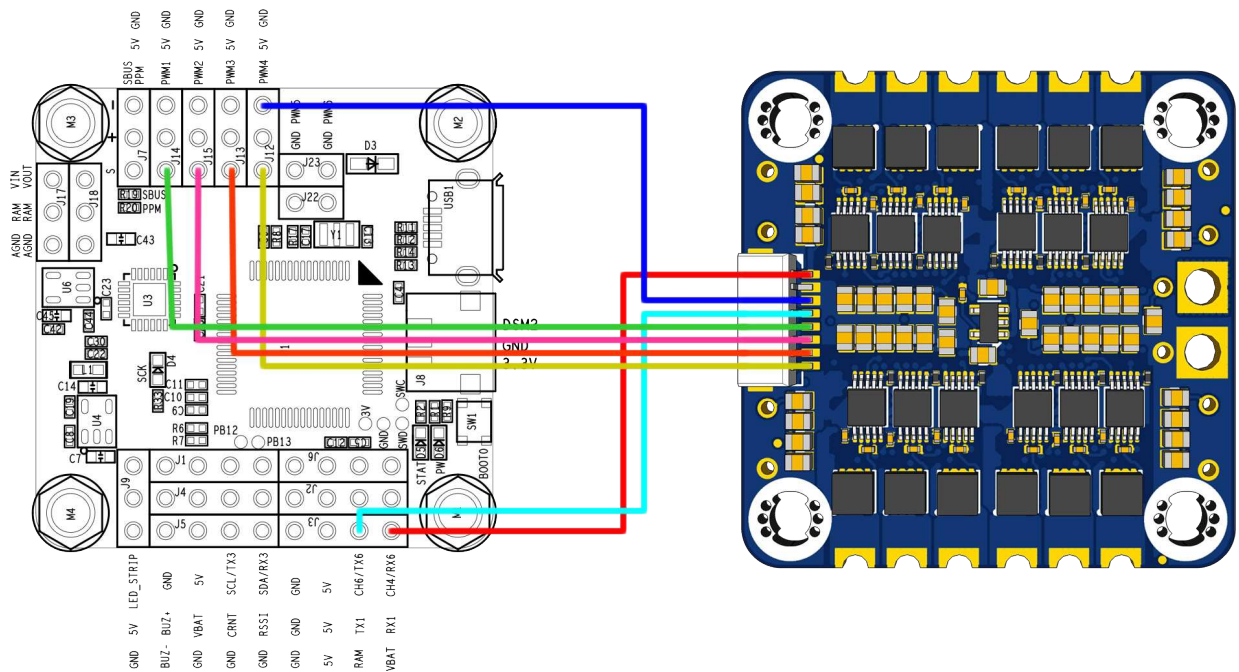
Use the 8pin cable which comes with the ESC to connect it to the FETtec FC



Betaflight

Connection

Signal 1 – 4 have to be connected to the corresponding FC Motor outputs. The TLM wire has to be connected to an available serial TX pin.



Configuration

In order to utilize ESC provided current and voltage sensor the following settings need to be applied to betaflight. (Feature, motor protocol and meter can be configured through the GUI itself). In addition the correct serial port need to be selected and assigned to ESC sensor.

Ports

WIKI

Note: not all combinations are valid. When the flight controller firmware detects this the serial port configuration will be reset.
Note: Do NOT disable MSP on the first serial port unless you know what you are doing. You may have to reflash and erase your configuration if you do.

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	☒ 115200 ▾	☐	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾
UART1	☐ 115200 ▾	☐	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾
UART2	☐ 115200 ▾	☐	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾
UART3	☐ 115200 ▾	☐	Disabled ▾ AUTO ▾	ESC ▾ AUTO ▾	Disabled ▾ AUTO ▾

```
feature ESC_SENSOR
set motor_pwm_protocol = DSHOT600
set current_meter = ESC
set battery_meter = ESC
set esc_sensor_halfduplex = ON
```

FETtec Configurator

Please update your ESC periodically with the current Firmware version.

The ESC configuration tool is available at <https://github.com/FETtec/ESC-Configurator>

The ESC firmware is available for download at <https://github.com/FETtec/ESC-Firmware>

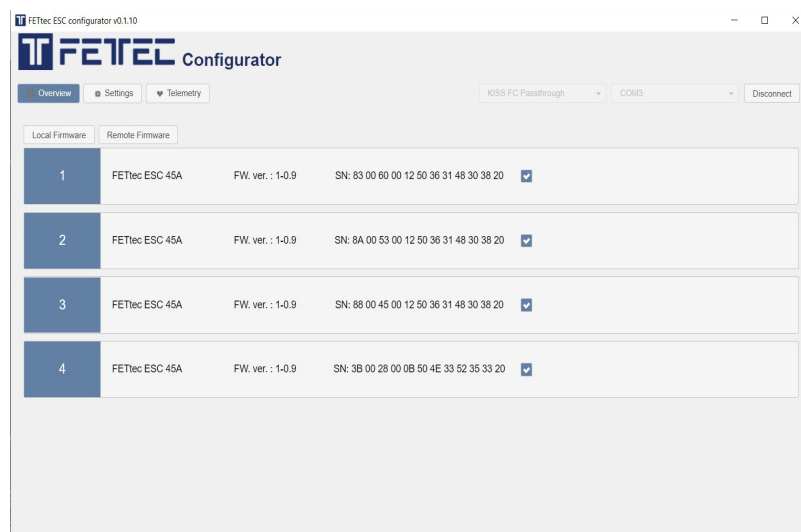
FC passthrough is available for the following platforms:

- KISS FC – Firmware 1.3-RC36j (or higher)
- Betaflight 4.1 firmware (Minimum requirement for Onewire is STM32F4)

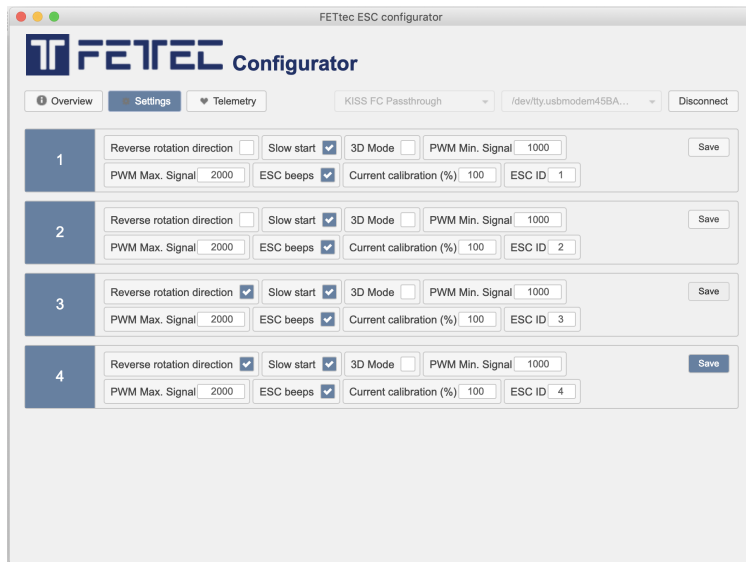
Settings



Mainpage to connect to the ESC. Please select correct connectivity type and serial/COM port.

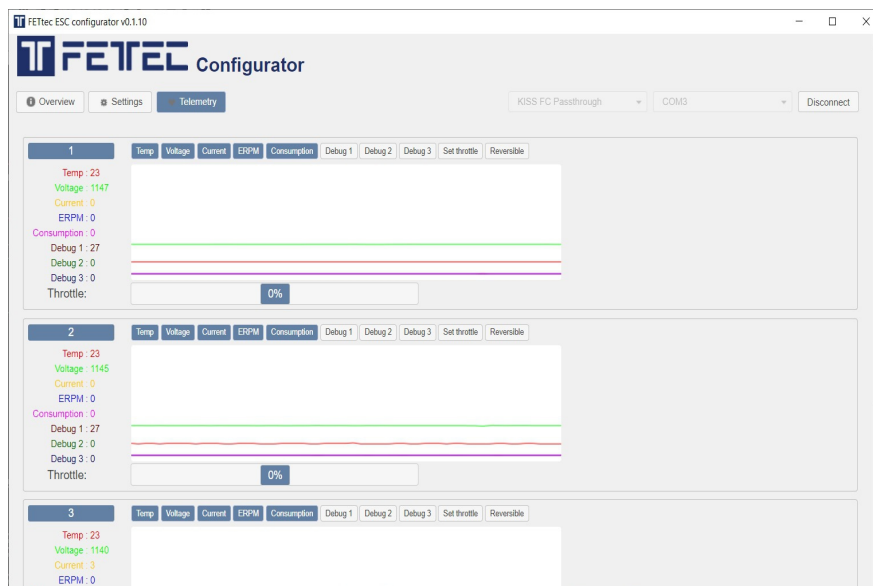


The **Overview** page allows to flash individual ESCs



The **Setting** page allows to adjust all available ESC parameter

- Reverse rotation direction
- Slow start
- 3D mode
- PWM min & max signal
- ESC Beep enabled
- Current calibration
- Individual ESC ID (for use on onewire protocol)



In **Telemetry** page you can spin the motors, view and debug the Motor telemetry.