

Flyduino KISS Flight Controller Manual v1.0

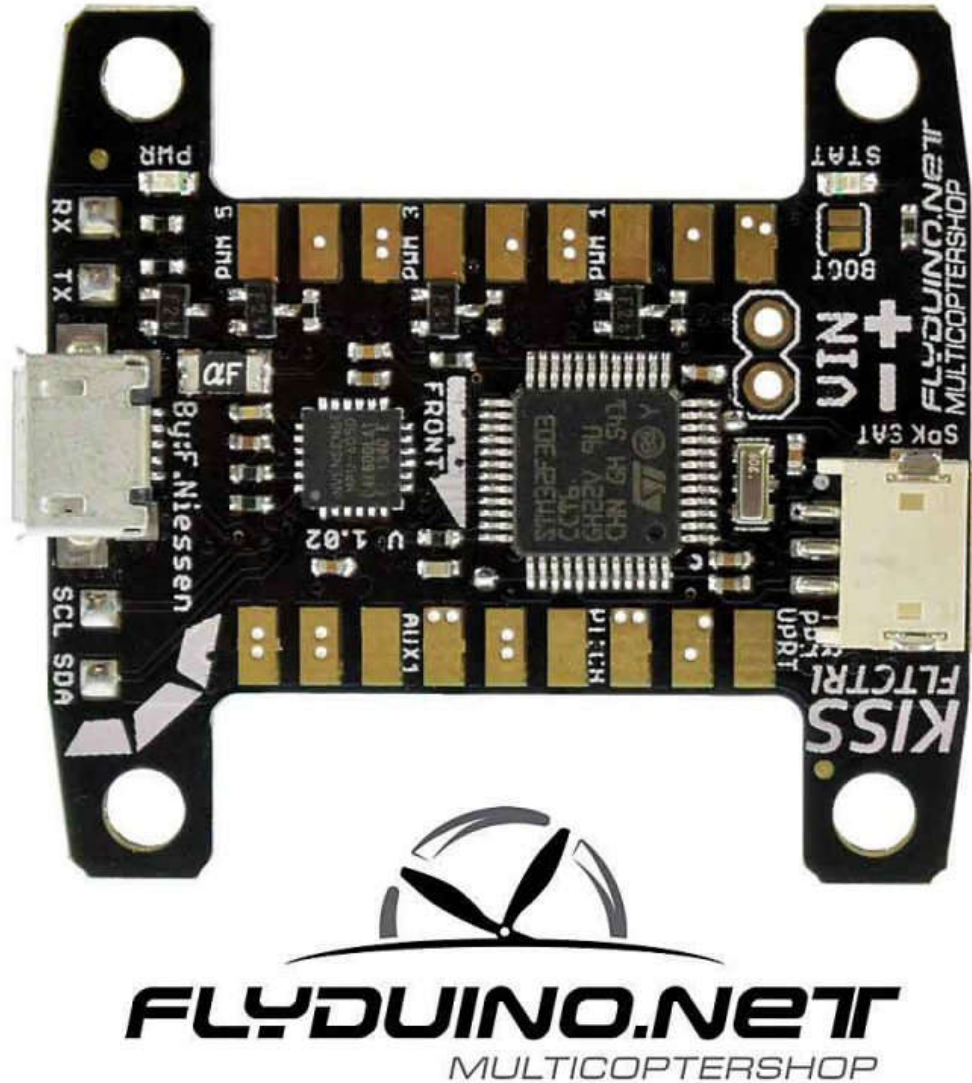


Image: Upper / Top Side

As we felt the need for a modern more simplified 32bit Flightcontroller, we made the KISS FC, which includes a complete own Flight Control Firmware development who get rid of some old ballast, this took some time, but the result is very pleasing.

The Idea was to simplify some things and due to intensive long term testings of some pretty good Pilots we where able to optimize the code to a point where you hopefully get your quad in the air quite quick.

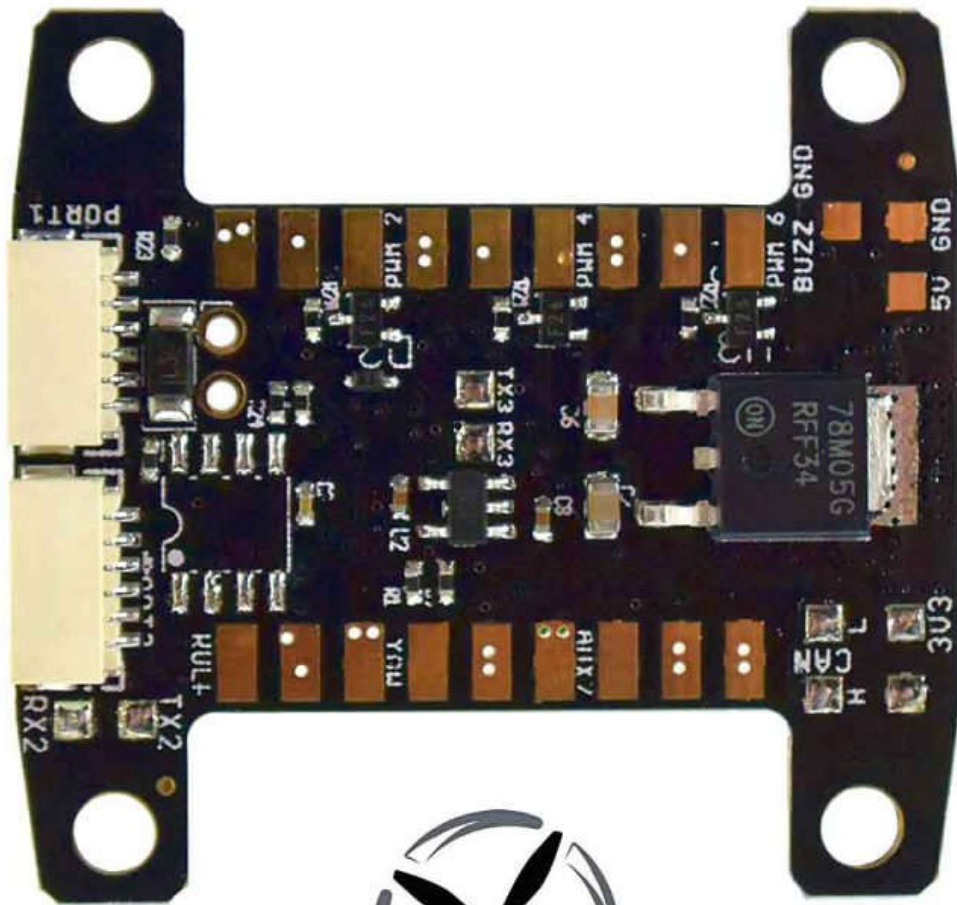


Image: Lower / Bottom Side

Normally you just need to choose your Airframe in the GUI and are able to fly (at least with KISS ESC), otherwise you can download presets of well known Pilots for given configurations and of course can tweak the PID yourself over the GUI.

The software setup side is reduced as far we can, many things are already taken into account for you, if you bring some solid soldering skills you should be able to build your quad pretty quick.

A new feature is also the build telemetry, in combination with our 32bit ESC line its possible to show the live telemetry data via OSD on your FPV live feed or in the KISS FC GUI

This way you get useful informations like the Voltage of your battery, current consumption, ESC temperature and motor RPM.

Other FC firmwares (eg. Cleanflight) can be ported for the use with the KISS FC.

Supported Copter frames:

- Tri
- Y4, Y6
- Quad +/-
- Hexa +/-

COM45
Disconnect
Welcome
Configuration
Data Output

UAV Type

- Quad X
- Tricopter
- Quad Plus
- Quad X
- Y4
- Y6
- Hexacopter Plus
- Hexacopter X

Receiver

4-6 single Chan

FS. levelmode Sec.: 10

PID & Rates

Presets: Preset custom Share

| | P | I | D | Rate | RC Rate | RC Curve |
|-------|-----|-------|-----|------|---------|----------|
| Roll | 3 | 0.035 | 10 | 0.7 | 0.7 | 0.4 |
| Pitch | 3 | 0.035 | 10 | 0.7 | 0.7 | 0.4 |
| Yaw | 8 | 0.05 | 0 | 0.7 | 0.7 | 0.4 |
| TPA | 0.4 | 0.2 | 0.4 | | | |

Max. Deg.

Level 4 0.04 10 50

KISS FC Version: 1.0 | S/N: 20303735-40335706-00390030

General Settings

Min. Throttle 1070

Max. Throttle 2000

Min. Command 1075

Mid. Command 1500

Tri Yaw Mid. 1500

Tri Yaw Invert

OneShot 125

OneShot 42

3D Mode

Aux Channel Settings

AUX 1 No Action

AUX 2 No Action

AUX 3 No Action

AUX 4 No Action

Filter

LPF FRQ High

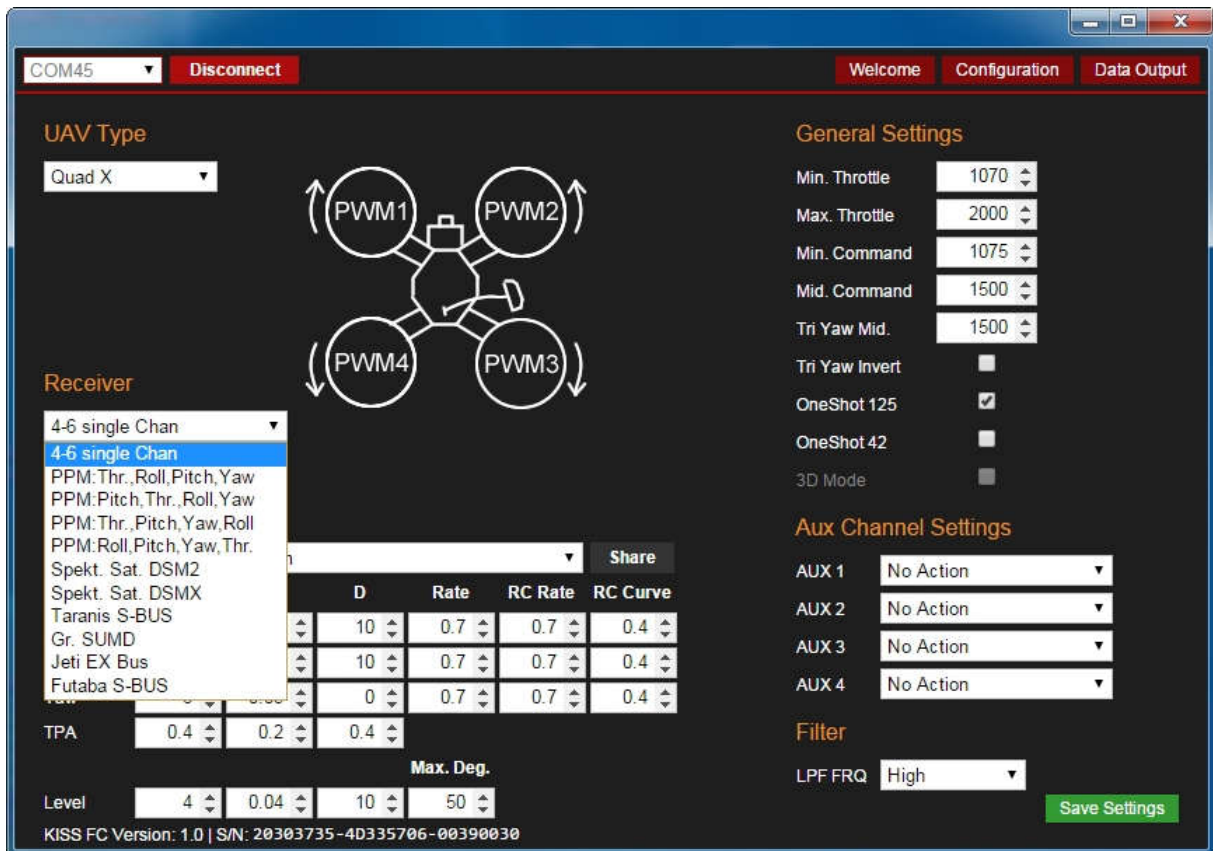
Save Settings

The diagrams illustrate various motor configurations:

- Top Row:**
 - Left: Standard Tricopter (PWM1, PWM2, PWM3, PWM4)
 - Middle: Y4 configuration (PWM1, PWM2, PWM3, PWM4)
 - Right: Y6 configuration (PWM1, PWM2, PWM3, PWM4, PWM5, PWM6)
- Bottom Row:**
 - Left: Hexacopter Plus configuration (PWM1, PWM2, PWM3, PWM4)
 - Middle: Hexacopter X configuration (PWM1, PWM2, PWM3, PWM4, PWM5, PWM6)
 - Right: Hexacopter configuration (PWM1, PWM2, PWM3, PWM4, PWM5, PWM6)

Supported Receiver types:

- Sum Signal (PPM)
- Spektrum Sat. (serial / DSM2 & DSMX)
- Futaba / Taranis SBUS
- Jeti ExBus
- Graupner SumD / SumO
- classic RX with single Channels



There are 8 Receiver inputs: 4 for the sticks and 4 AUX channels 1-4

Other Features

MCU: STM32F303CCT6

IMO: MPU6050

Weight: 4.6g

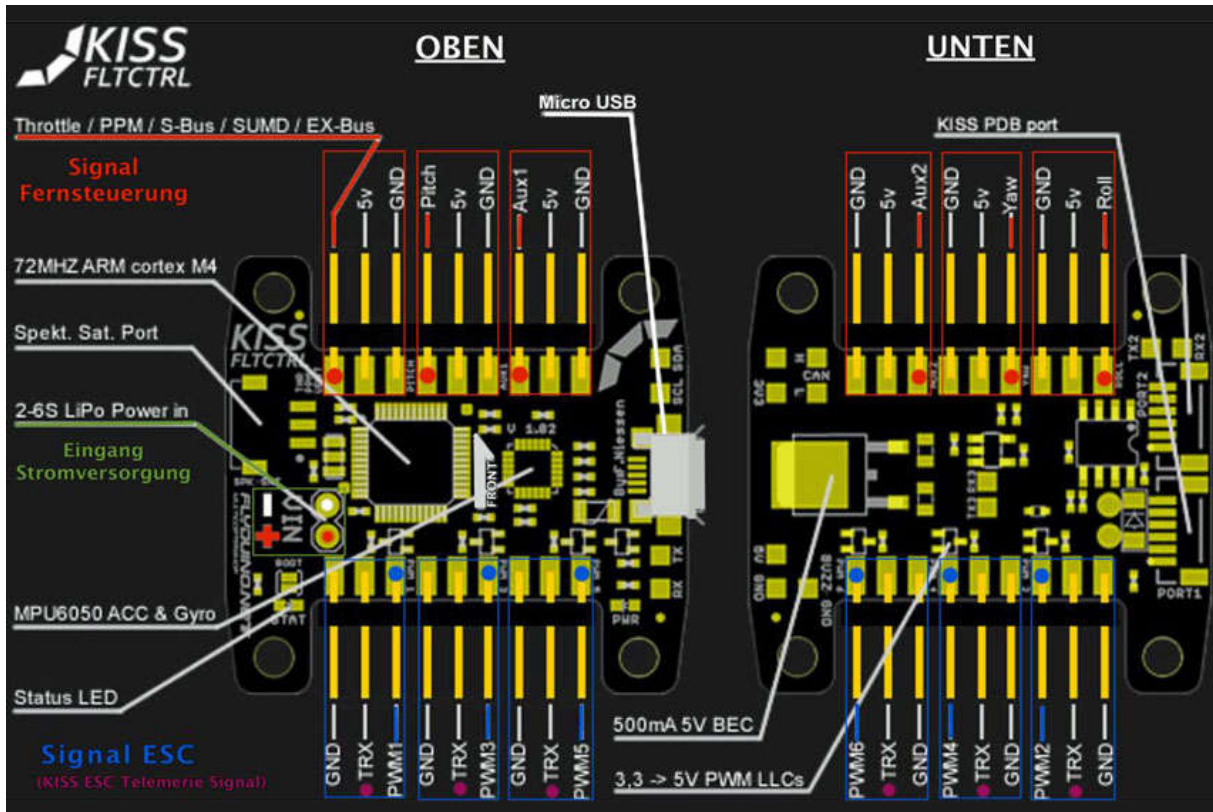
Mounting Holes: 3x3cm pattern with 3.2mm holes (compatible with most frame types)

Voltage: 2-6S (direct, max. 5s recommended)

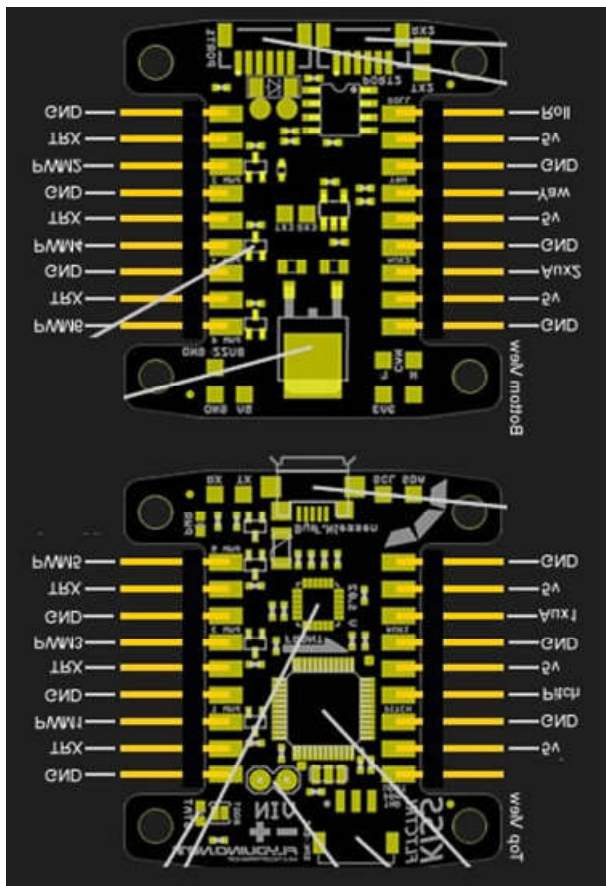
The needed USB driver usually will be installed when you connect the FC for the first time. It may take several minutes before you can use the FC and connect it to the GUI.

Connections

You can find the connection diagram / pinout on the Welcome page of the GUI. **TRX** = Telemetrie In



There are 6 PWM outputs for 2-6 Motors or Servos



GUI (Grafical User Interface)

The GUI consists of 3 pages: The „Welcome“ page with all connections, the „Configuration“ page for the settings and „Data Output“ for Sensorgraphs.

COM45 | Disconnect | Welcome | Configuration | Data Output

UAV Type
 Quad X

Receiver
 4-6 single Chan

FS. levelmode Sec.: 10

PID & Rates

Presets: Preset | custom | Share

| | P | I | D | Rate | RC Rate | RC Curve |
|-------|-----|-------|-----|------|---------|----------|
| Roll | 3 | 0.035 | 10 | 0.7 | 0.7 | 0.4 |
| Pitch | 3 | 0.035 | 10 | 0.7 | 0.7 | 0.4 |
| Yaw | 8 | 0.05 | 0 | 0.7 | 0.7 | 0.4 |
| TPA | 0.4 | 0.2 | 0.4 | | | |

Max. Deg.
 Level: 4 | 0.04 | 10 | 50

General Settings

Min. Throttle: 1070
 Max. Throttle: 2000
 Min. Command: 1075
 Mid. Command: 1500
 Tri Yaw Mid.: 1500
 Tri Yaw Invert:
 OneShot 125:
 OneShot 42:
 3D Mode:

Aux Channel Settings

AUX 1: No Action
 AUX 2: No Action
 AUX 3: High: Level Mode
 High: 3D Mode
 AUX 4: Mid: Level, High: 3D
 PWM5 Servo Mid
 PWM5 Ser. AngX. Gain
 PWM6 Servo Mid
 PWM6 Ser. AngY. Gain
 High: Buz on PWM6

KISS FC Version: 1.0 | S/N: 20303735-4D335706-00390030

COM45 | Disconnect | Welcome | Configuration | Data Output

Receiver

| | |
|----------|------|
| Throttle | 1000 |
| Roll | 1500 |
| Pitch | 1500 |
| Yaw | 1500 |
| Aux 1 | 1500 |
| Aux 2 | 1500 |
| Aux 3 | 1500 |
| Aux 4 | 1500 |

Motors

| | |
|-------|------|
| PWM 1 | 1000 |
| PWM 2 | 1000 |
| PWM 3 | 1000 |
| PWM 4 | 1000 |
| PWM 5 | 1500 |
| PWM 6 | 1500 |

Other

Mode: Acro
 Status: Disarmed
 AngleX: 1.38
 AngleY: -0.30
 AngleZ: 0.00
 Calibrate Accelerometer

Gyro & ACC Datas: MCU Idle: 90 % Battery Voltage: 4.08 V

Gyroscope X: 0.000
 Gyroscope Y: 0.000
 Gyroscope Z: 0.000
 Accelerometer X: 0.026
 Accelerometer Y: -0.005
 Accelerometer Z: 1.044



Installation & Setup

Just plug in the FC via Micro USB connection to your PC. Drivers should be installed automatically on WIN7-10.

After the installation is complete, unplug the FC from the USB, plug it in again and hold the FC firm and level for at least 5 seconds!

The green LED will be lit constantly while the blue LED will blink, indicating the Gyro calibration. It will be solid afterwards and go off when the calibration is completed und the FC is ready to go.

Then start the Chrome GUI and select the COM port for the connection. If no port is shown, the driver installation might have failed. Sometimes on first connection, the GUI doesn't switch to the Configuration page. In that case click on „Disconnect“ and then on „Connect“ again.

The default PIDs should be good enough for a start. However if you want to tune the FC to the max and squeeze the last bit of performance out of it, you will need to fine tune the settings.

A great feature of the GUI is the “Share” button, where you can submit your PIDs with other users. This can be a good starting point for beginners with similar setups. Please don't abuse that function!

Share you KISS FC PID settings

note: please only publish your PID settings if you think that they can be usefull for other pilots!

Descibe you copter and settings:

Your name: Copter size (mm): Description:

The whole Flyduino team wishes you great success and a lot of fun with this new FC!



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