



**MATEKSYS**

# **FLIGHT CONTROLLER F411-WSE**

## **QUICK START GUIDE**

MCU: 100MHz STM32F411CEU6  
IMU: MPU6000 (SPI)  
Baro: BMP280 (I2C)  
OSD: AT7456E (SPI)  
Blackbox: No

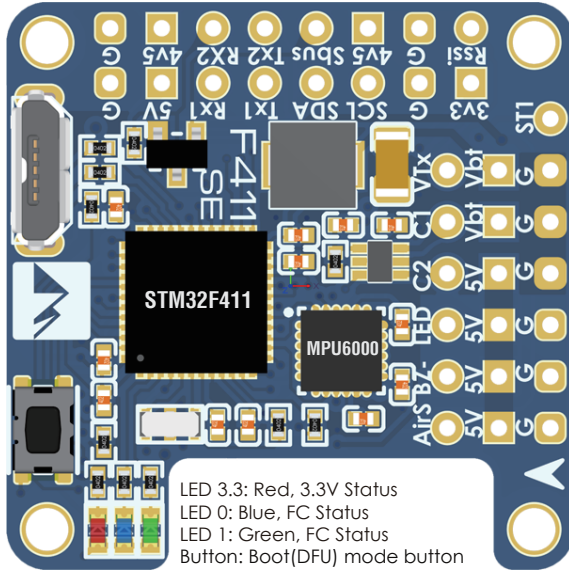
2x Uarts  
2x Softserial\_Tx  
2x Motors & 4x Servos outputs  
1x I2C  
4x ADC (VBAT, Current, RSSI, AirSpeed)

Switchable Dual Camera Inputs

6~30V DC IN (2~6S LiPo)  
Current Sense 78A, Scale 423  
BEC 5V 2A cont. 3A Max. for FC  
BEC Vx 3.5A cont. 5A Max. for servos, 6V option  
LDO 3.3V 200mA  
Vbat filtered output power

TARGET: INAV MATEKF411SE

# LAYOUT



5V: onboard BEC 5V 2A cont. Max.3A  
4V5: 4.4~4.8V, Max.500mA  
\*\*\* the voltage is also supplied when connecting via USB  
3.3: LDO3.3V 200mA  
Vbt: Battery voltage filtered  
G: Ground

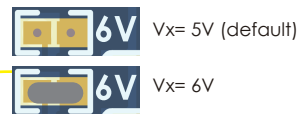
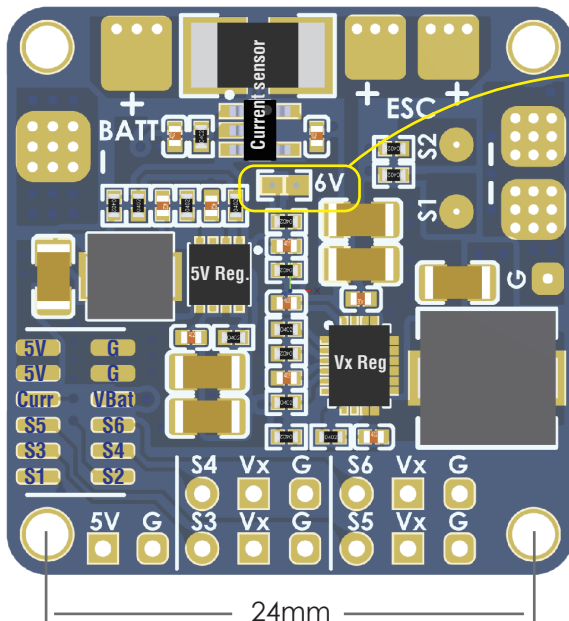
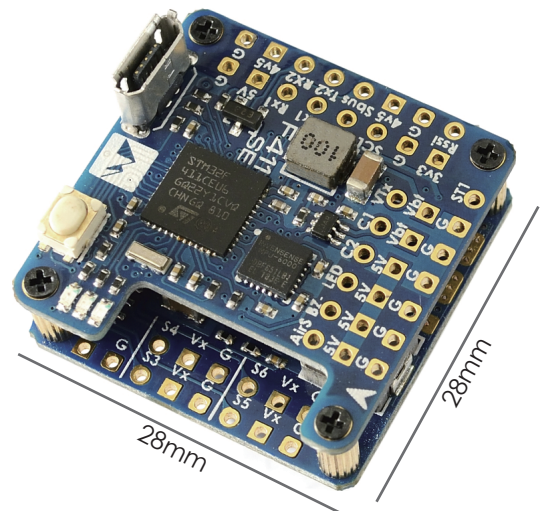
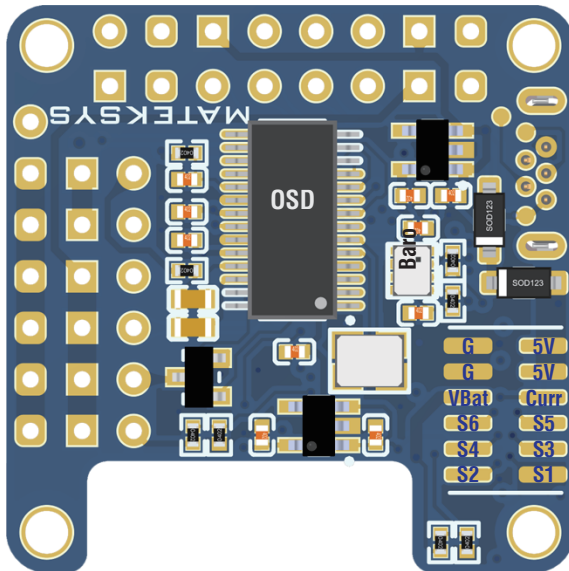
Tx2: UART2-TX, Softserial\_Tx2 share Tx2 pad  
Rx2: UART2-RX, PPM share RX2 pad  
Sbus: RX2 with inversion for SBUS input

Tx1/Rx1: UART1  
SCL/SDA: I2C1 for compass / OLED / Digital AirSpeed  
\*\*\* compass HMC5883 /MAG3110 /QMC5883 /IST8310  
\*\* Digital AirSpeed sensor Pitot\_MS4525  
\*\*\* OLED 0.96" 128x64

Rssi: Analog RSSI input  
ST1: Softserial\_Tx1

VTX: Video OUT for Video Transmitter  
C1: Camera-1 video IN (Default)  
C2: Camera-2 video IN  
\*\*\* C1/C2 can be switched via Modes/USER1

LED: WS2812 LED signal output  
Bz- & 5V: General active 5V buzzer  
Bz-, 5V & G: Matek Dbuz5V  
AirS: Analog Airspeed sensor (0~6.6V)  
1:1 divider resistance built-in



+ & - : Battery & ESC power pads, 6~30V DC(2~6S LIPO)  
Voltage meter scale: 1100  
Current Sensor: 78A (Scale 423)

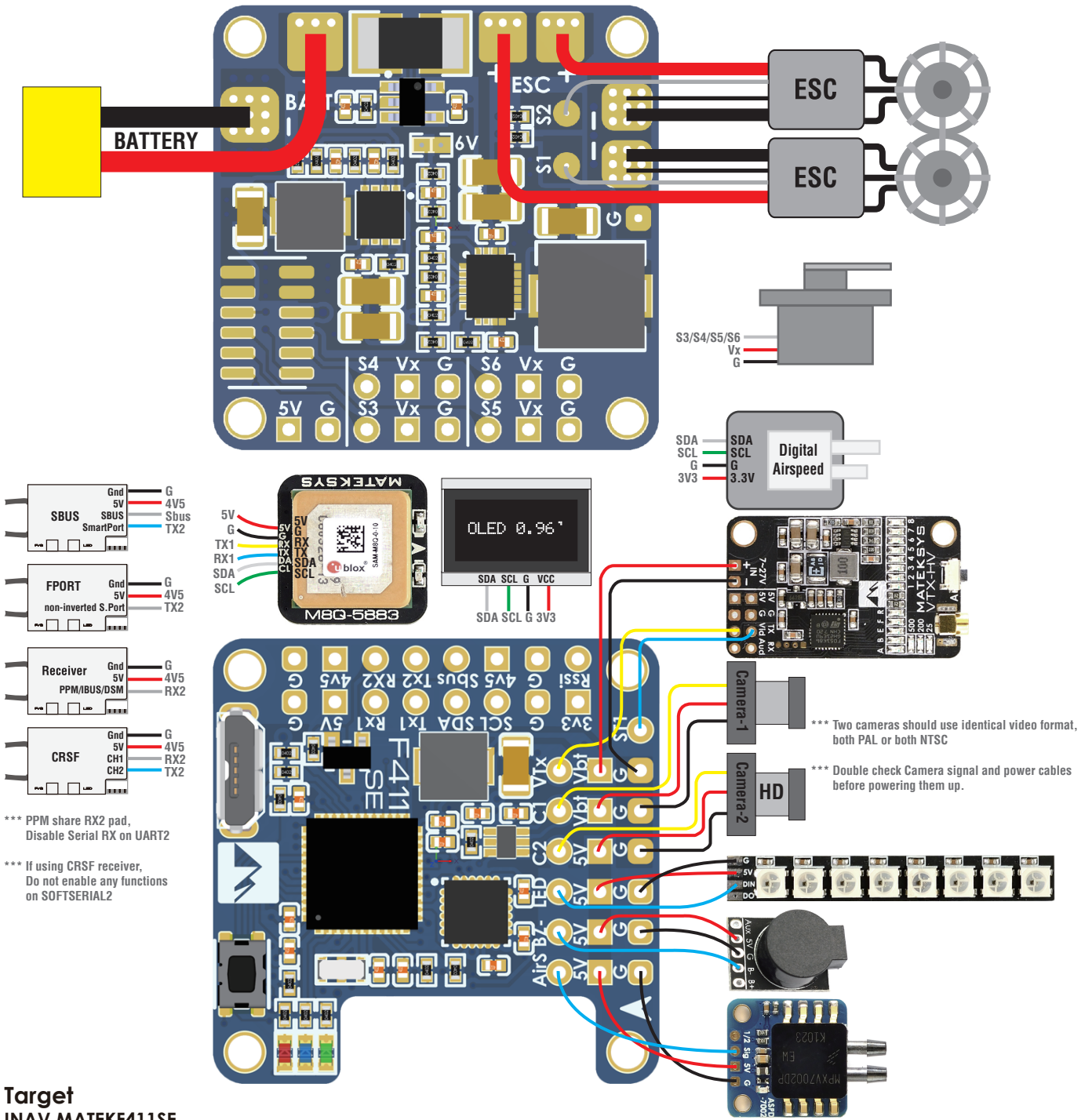
S1/S2: ESC signal for motor 1 & 2  
G: ESC signal ground

S3/S4/S5/S6: Servo signal  
Vx: onboard BEC for servos, Default is 5V  
3.5A cont. Max.5A  
5V: onboard BEC 5V 2A cont. Max.3A

Size: 28x28x1.4mm  
Weight: 8.5g  
Holes: Φ2mm, 24mm mounting

# Wiring (INAV Airplane)

Airplane S7 & S8 for motors  
S1/S2/S3/S4/S5/S6 for servos



## Target INAV MATEKF411SE

\*\*\* CLI defaults after reflashing

| Identifier  | Data   | Telemetry        | RX  | Sensors         | Peripherals      |
|-------------|--|------------------|---|-----------------|------------------|
| USB VCP     | <input checked="" type="checkbox"/> MSP 115200 | Disabled AUTO    | <input type="checkbox"/> Serial RX            | Disabled 115200 | Disabled 115200  |
| UART1       | <input type="checkbox"/> MSP 115200            | Disabled AUTO    | <input type="checkbox"/> Serial RX            | GPS 57600       | Disabled 115200  |
| UART2       | <input type="checkbox"/> MSP 115200            | Disabled AUTO    | <input checked="" type="checkbox"/> Serial RX | Disabled 57600  | Disabled 115200  |
| SOFTSERIAL1 | <input type="checkbox"/> MSP 115200            | Disabled AUTO    | <input type="checkbox"/> Serial RX            | Disabled 115200 | IRC Tramp 115200 |
| SOFTSERIAL2 | <input type="checkbox"/> MSP 115200            | SmartPort 115200 | <input type="checkbox"/> Serial RX            | Disabled 115200 | Disabled 115200  |

**Current Sensor**

Battery current monitor

2423 Scale the output voltage

0 Offset in millivolt steps

0.20 Battery Current

## Camera switcher

USER1 No USER1 definition  
C1 (Camera-1) ON by default

Add Range

USER1 CH 8 C1 ON & C2 OFF C2 ON & C1 OFF

Min: 1300 Max: 2100

900 1000 1200 1400 1500 1600 1800 2000 2100