



MATEKSYS

FLIGHT CONTROLLER F411-miniSE

QUICK START GUIDE

MCU: 100MHz STM32F411CEU6

IMU: MPU6000 (SPI)

Baro: BMP280 (I2C)

OSD: AT7456E (SPI)

Blackbox: No

2x Uarts

2x Softserial-Tx

6x PWM outputs (Dshot/Proshot/oneshot/multishot)

1x I2C

3x ADC (VBAT, Current, RSSI)

3x LEDs for FC STATUS (Blue, Red) and 3.3V indicator(Red)

1x SH1.0_8pin connector (Vbat/G/Curr/R6/S1/S2/S3/S4)

TR/SA VTX control

Camera control

WS2812 Led control

Beeper output

Filtered Vbat output power for VTX, switchable via AUX (modes tab-user1)

Input: 6~36V (2~8S LiPo)

BEC: 5V 2A cont. (Max.3A)

LDO 3.3V: Max.200mA

Battery Voltage Sensor: 1:10 (Scale 110)

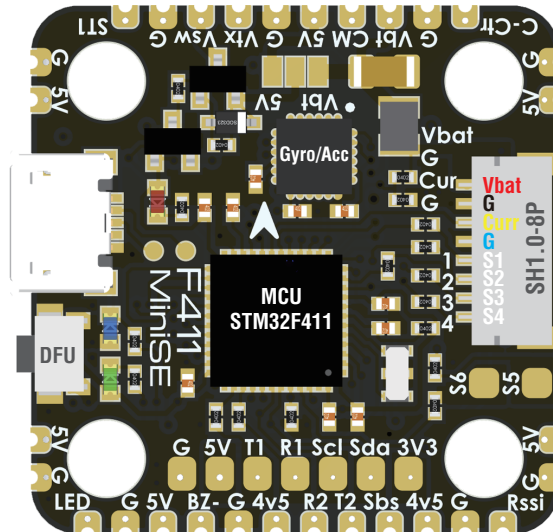
Current Sensor: No

Convertible 20mm to 30.5mm mounting

LAYOUT

CM: Camera video IN
 C-Ctr: Camera menu control via PWM
 Vbt: Filtered Battery voltage
 VTx: Video OUT for Video Transmitter
 Vsw: Power for VTX, Vbt or 5V option, Max.1A load on this pad. (Default ON)
 *** ON/OFF can be switched via PINIO1 (Modes Tab/USER1)
 ST1: Softserial1_TX

LED 3.3: Red, 3.3V Status
 LED 0: Blue, FC Status
 LED 1: Green, FC Status



SH1.0-8P Sequence
 --Vbat: Battery voltage, 6~36V DC IN
 --G: Ground
 --Curr: current sensor signal IN
 --G: Ground
 --S1/S2/S3/S4: ESC signal

S5/S6: ESC signal

3V3: LDO3.3V Max.200mA

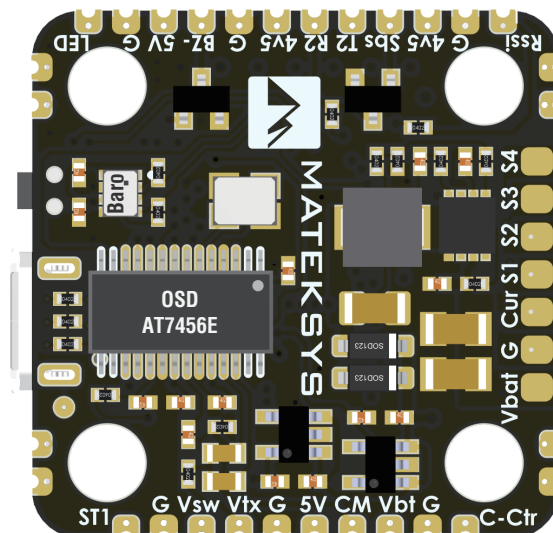
Rssi: Analog RSSI IN (0~3.3V)

5V: onboard regulator 5V 2A cont. Max.3A
 4V5: 4.4~4.8V, Max.500mA, this voltage is also supplied when connecting via USB
 G: Ground

T2: UART2-TX, Softserial_Tx2 share Tx2 pad
 R2: UART2-RX, PPM share RX2 pad
 Sbs: R2 with inversion for SBUS input

R1 & T1: UART1_RX & TX
 SCL/SDA: I2C1

Buz- & 5V: General active 5V buzzer
 Buz- /5V/G: Matek DBUZ5V
 LED: 2812 LED signal Out



Size & Weight: 28x28mm /5g
 Holes: Φ4mm, 20mm x 20mm

Packing
 1x F411-miniSE
 1x 20mm to 30.5mm conversion plate
 1x SH1.0_8pin cable 5cm
 2x SH1.0_8pin connector
 6x M3 Silicon Grommets
 6x M2 Brass Grommets

Wiring & settings

Wiring Diagram:

- SBUS:** Gnd to G, 5V to 5V, SBus to SBus, SmartPort to SmartPort.
- CRSF:** Gnd to G, 5V to 5V, CH1 to CH1, CH2 to CH2.
- FPORT:** Gnd to G, 5V to 5V, non-inverted S.Port to non-inverted S.Port.
- PPM/BUS:** Gnd to G, 5V to 5V, PPM/BUS to PPM/BUS.
- LED:** G to G, 5V to 5V, LED to LED, DO to DO.
- Buzzer:** G to G, 5V to 5V, BZ- to BZ-.

4in1 ESC & Motors: Motor 1, 2, 3, 4. w/ one current sensor. Connections: 5V to 5V, GND to GND, VBAT to VBAT, Vb+ to Vb+, Vb- to Vb-.

OSD: Connections: 5V to 5V, GND to GND, Vb+ to Vb+, Vb- to Vb-.

Settings Screenshot:

Battery

- Onboard ADC: Voltage Meter Source
- Onboard ADC: Current Meter Source
- 3.3: Minimum Cell Voltage
- 4.3: Maximum Cell Voltage
- 3.5: Warning Cell Voltage
- 0: Capacity (mAh)

Voltage Meter

- 110: Scale
- 10: Divider Value
- 1: Multiplier Value

Amperage Meter

Use the current sensor scale of 4in1

Battery: 0.00 A

0: Offset [mA]

Vb+ 5V

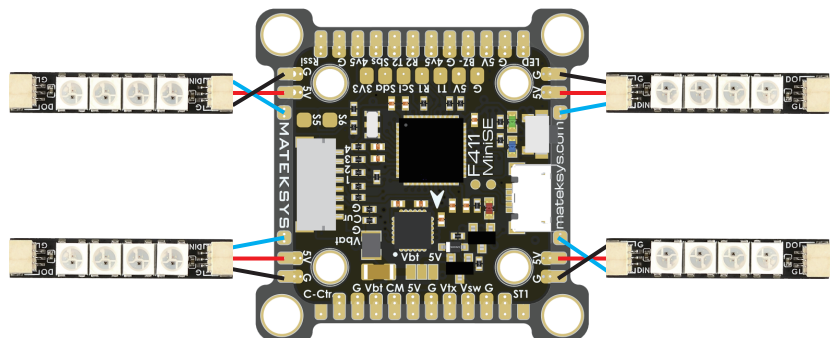
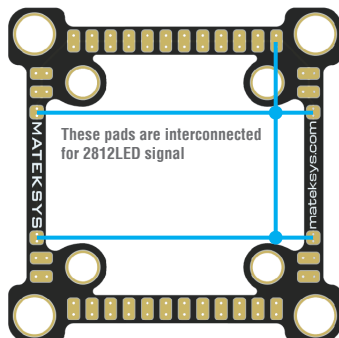
Vb- 5V

Vsw = 5V

Vsw = Vb+ (Filtered battery voltage)

Vsw: Max. 1A load on this pad, ON/OFF can be switched via PINIO1 (Modes Tab/USER1)

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200	☐	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	115200	☐	Disabled AUTO	GPS AUTO	Disabled AUTO
UART2	115200	☒	Disabled AUTO	Disabled AUTO	VTX (IRC Tran) AUTO
SOFTSERIAL1	115200	☐	Disabled AUTO	Disabled AUTO	Disabled AUTO
SOFTSERIAL2	115200	☐	SmartPort AUTO	Disabled AUTO	Disabled AUTO



Target MATEKF411SE

Release: BetaFlight

MATEKF411SE (MTKS)

MATEKF411RX (MTKS)

MATEKF411RX (Legacy)

MATEKF411SE (MTKS)

MATEKF722 (MTKS)

MATEKF722 (Legacy)

MATEKF411SE INAV

2.3.0 - MATEKF411SE - 2019-10-27 15:6 (rele)

☐ No reboot sequence

☒ Full chip erase

☒ Manual baud rate 19200

☒ Show unstable releases

VTX Power switch (Vsw pad)

USER1: No USER1 definition

Add Range

Vsw ON Vsw OFF

Min: 1350 Max: 2100

900 1000 1200 1400 1500 1600 1800 2000 2100