



**MATEKSYS**

# **FLIGHT CONTROLLER F722-HD**

## **QUICK START GUIDE**

MCU: 216MHz STM32F722RET6  
IMU: MPU6000 (SPI)  
Baro: BMP280 (I2C)  
Blackbox: 32M-byte Flash (SPI)  
OSD: support external DJI FPV OSD/FrskyOSD via Uart  
No analog MAX7456 OSD built-in

6x Uarts with built-in inversion  
1x Softserial\_Tx option  
10x Dshot/PWM outputs  
1x I2C  
4x ADC (VBAT, Current, RSSI, AirSpeed)  
2x SH1.0\_8pin connector (Vbat/G/Curr/Rx3/S1~S10)  
1x SH1.0\_6pin connector for DJI FPV Air Unit

Switchable 8V output

9~36V DC IN (3~8S LiPo)  
BEC: 5V 2A cont. (Max.3A)  
BEC: 8V 2A cont. (Max.3A)  
LDO 3.3V: Max.200mA  
Battery Voltage Sensor: 1:10 (Scale 110)  
Current Sensor: No

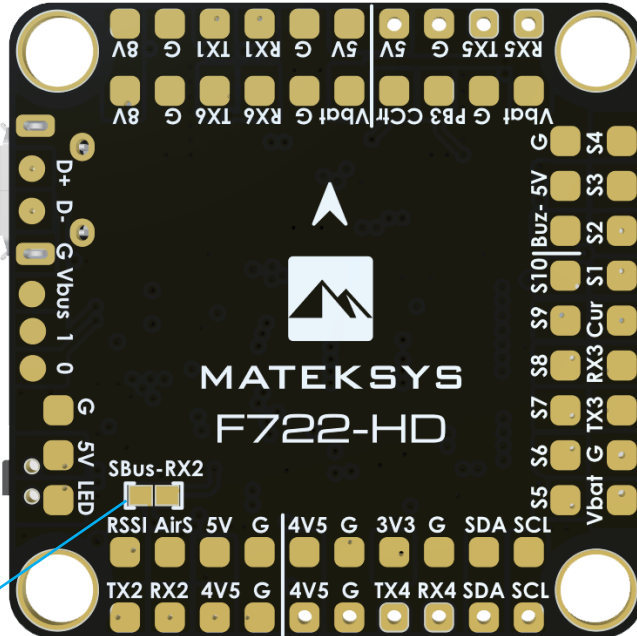
**INAV target MATEKF722PX**  
**BetaFlight unified target MATEKF722HD**

# LAYOUT

5V: onboard BEC 5V 2A cont. 3A burst  
 8V: onboard BEC 8V 2A cont. 3A burst  
 \*\*\* 8V ON/OFF can be switched via Modes/USER1 (Default ON)  
 Vbat: Battery voltage

RX1 & TX1: UART1\_RX & TX  
 RX5 & TX5: UART5\_RX & TX  
 RX6 & TX6: UART6\_RX & TX

CCTr: PWM camera control  
 G: Ground



D+ & D-: USB data  
 Vbus: USB voltage

1: SWDIO  
 0: SWCLK

LED: 2812 LED signal Ou

Buz- & 5V: General active 5V buzzer  
 Buz- /5V/G: Matek DBUZ5V

S1~S10: DShot/PWM outputs

Cur: current sensor signal IN  
 Rx3 & Tx3: UART3\_RX & TX

Vbat: Battery voltage, 9~36V DC IN  
 G: Ground



If using non-DJI FPV remote controller, keep this pad unbridged



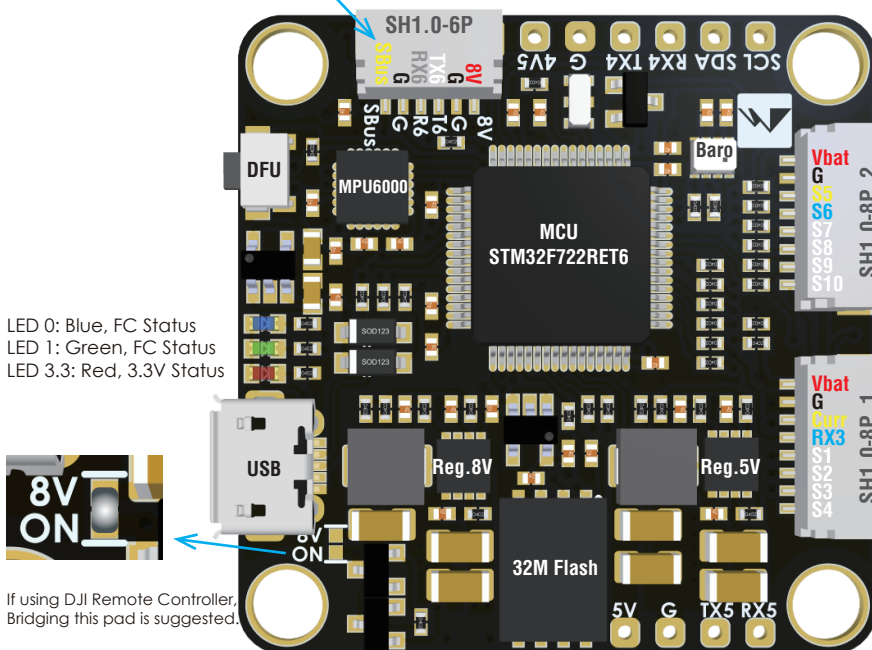
If using DJI FPV Remote Controller, Bridging this pad will link RX2 to SBUS pin on SH1.0-6P connector

4V5: 4.4~4.8V, Max.500mA, the voltage is also supplied when connecting via USB  
 3V3: LDO3.3V Max.200mA

RX2: UART2\_RX for Serial RX by default, PPM share RX2 pad  
 TX2: UART2\_TX  
 \*\*\* TX2 can be used for softserial\_tx1  
 \*\*\* F722 Uarts have built-in inversion, SBUS can be connected to any unused UART\_RX.  
 \*\*\* Frsky FPort, SmartPort, Tramp & SmartAudio can be connected to any unused UART\_TX

Airs: Analog Airspeed sensor IN (0~3.3V)  
 Rssi: Analog RSSI IN (0~3.3V)

SCL & SDA: I2C1 Bus for Magnetometer/Digital airspeed sensor/OLED  
 TX4 & RX4: UART4\_TX & RX  
 \*\*\* GPS can be connected to any unused UART\_TX & RX



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



If using DJI Remote Controller, Bridging this pad is suggested.

SH1.0-8P\_2 Sequence  
 --Vbt: Battery voltage, 9~36V DC IN  
 --G: Ground  
 --S5/S6/S7/S8/S9/S10: DShot/PWM outputs

SH1.0-8P\_1 Sequence  
 --Vbt: Battery voltage, 9~36V DC IN  
 --G: Ground  
 --Curr: current sensor signal IN  
 --Rx3: UART3\_RX, for BLHeli32 ESC Telemetry  
 --S1/S2/S3/S4: DShot/PWM outputs

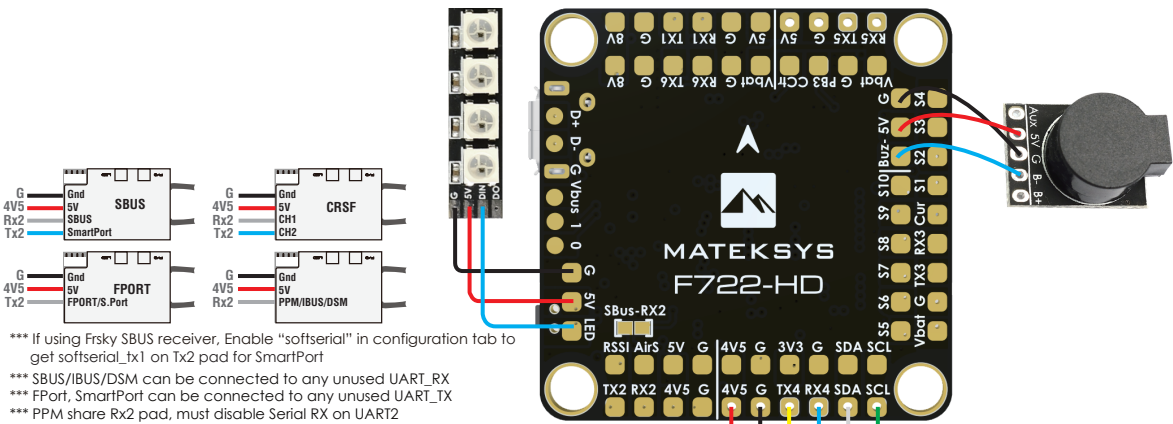
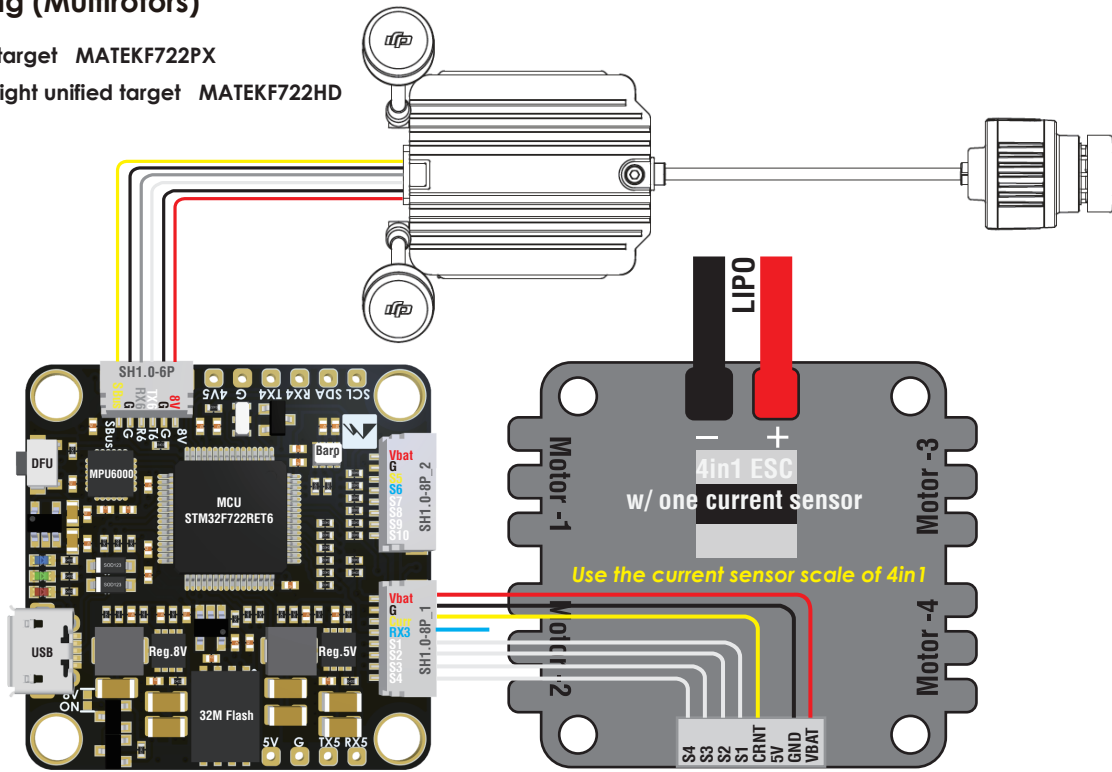
Size & Weight: 36x36mm /6.5g  
 Holes: Φ4mm, 30.5mm x 30.5mm

Packing  
 1x F722-HD  
 1x SH1.0\_8pin cable 5cm  
 2x SH1.0\_8pin connector  
 6x M3 Silicon Grommets  
 1x SH1.0\_6pin to GH1.25\_8pin 8cm for DJI air unit

## Wiring (Multirotors)

INAV target MATEKF722PX

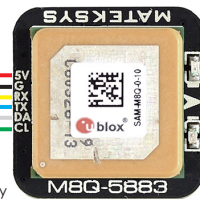
BetaFlight unified target MATEKF722HD



**SBUS-RX2**  
If using non-DJI FPV remote controller, keep this pad unbridged. You can connect other receiver to RX2 without conflict.

**SBUS-RX2**  
If using DJI FPV Remote Controller, Bridging this pad will link RX2 to SBUS pin on SH1.0-6P connector

\*\*\* GPS is supported on any unused UART\_TX & RX  
\*\*\* 4V5 is also supplied when connecting via USB only



Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input
USB VCP	<input checked="" type="checkbox"/> MSP 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO
UART1	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO
UART2	<input type="checkbox"/> 115200	<input checked="" type="checkbox"/>	Disabled   AUTO	Disabled   AUTO
UART3	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO
UART4	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	GPS   AUTO
UART5	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO
UART6	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO
SOFTSERIAL1	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO

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 checked="" type="checkbox"/> MSP 115200	Disabled   AUTO	<input type="checkbox"/> Serial RX	Disabled   115200	Disabled   115200
UART2	<input type="checkbox"/> MSP 115200	Disabled   AUTO	<input checked="" type="checkbox"/> Serial RX	Disabled   115200	Disabled   115200
UART3	<input type="checkbox"/> MSP 115200	Disabled   AUTO	<input type="checkbox"/> Serial RX	Disabled   115200	Disabled   115200
UART4	<input type="checkbox"/> MSP 115200	Disabled   AUTO	<input type="checkbox"/> Serial RX	GPS   115200	Disabled   115200
UART5	<input type="checkbox"/> MSP 115200	Disabled   AUTO	<input type="checkbox"/> Serial RX	Disabled   115200	Disabled   115200
UART6	<input type="checkbox"/> MSP 115200	Disabled   AUTO	<input type="checkbox"/> Serial RX	Disabled   115200	Disabled   115200
SOFTSERIAL1	<input type="checkbox"/> MSP 115200	Disabled   AUTO	<input type="checkbox"/> Serial RX	Disabled   115200	Disabled   115200

## 8V output switch (BetaFlight/INAV)

**USER1**

Add Range

Disable USER1  
8V ON by default

**USER1**

CH 5

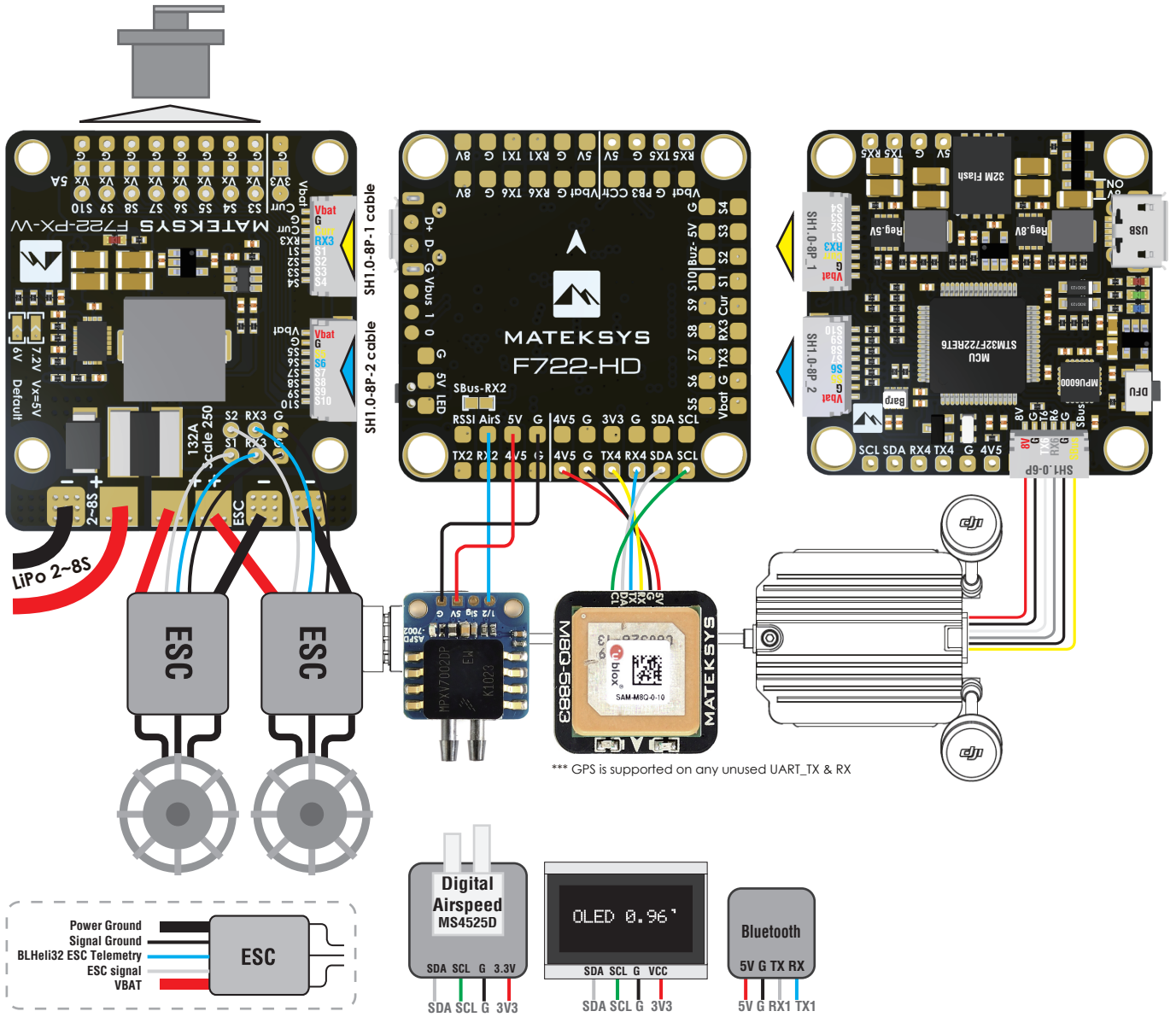
8V ON  8V OFF

Min: 1375 Max: 2100

900 1000 1200 1400 1500 1600 1800 2000 2100

\*\*\* If using DJI FPV Remote Controller, DO NOT enable USER1

## Wiring (Airplane)



## Wiring (FrskyOSD)

