



MATEKSYS

FLIGHT CONTROLLER F722-HD

QUICK START GUIDE

MCU: 216MHz STM32F722RET6
IMU: MPU6000 (SPI)
Baro: BMP280 or DPS310 (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

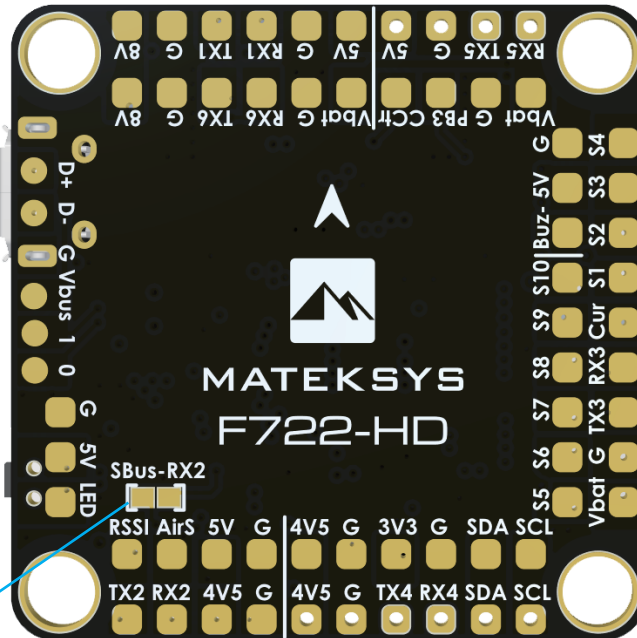
LED: 2812 LED signal Ou

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

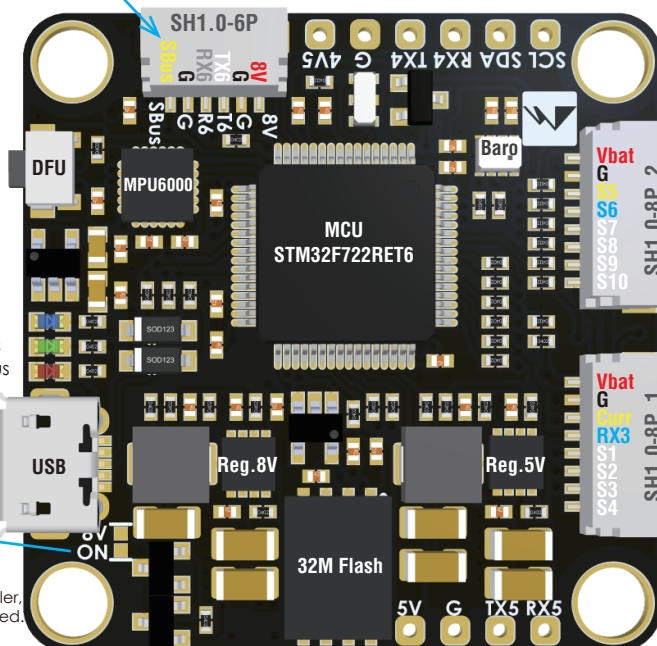
Airs: Analog Airspeed sensor IN (0~3.3V)

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

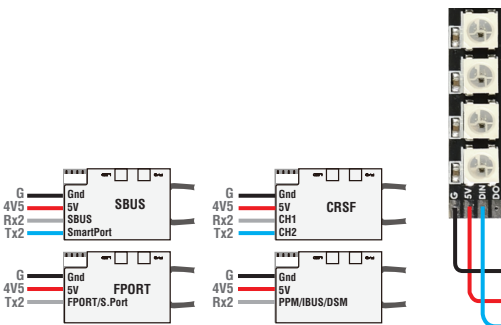
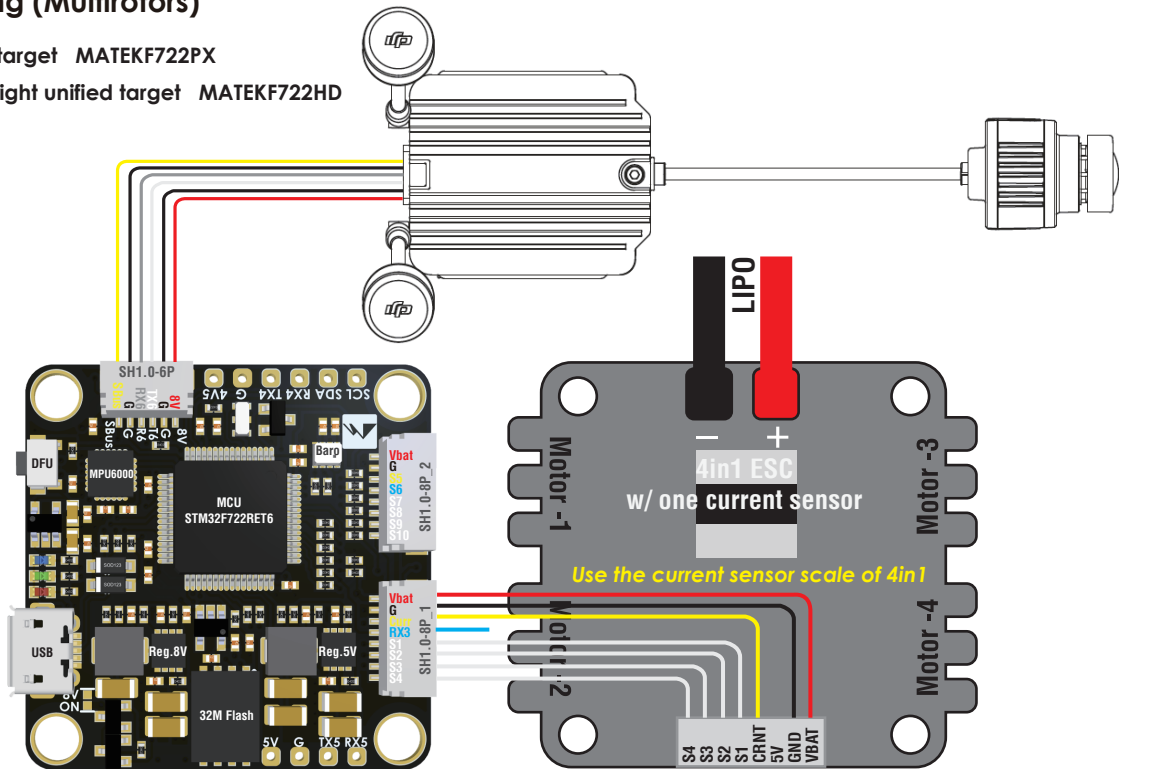
Size & Weight: 36x36mm /6.5g
 Holes: Φ4mm, 30.5mm x 30.5mm

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



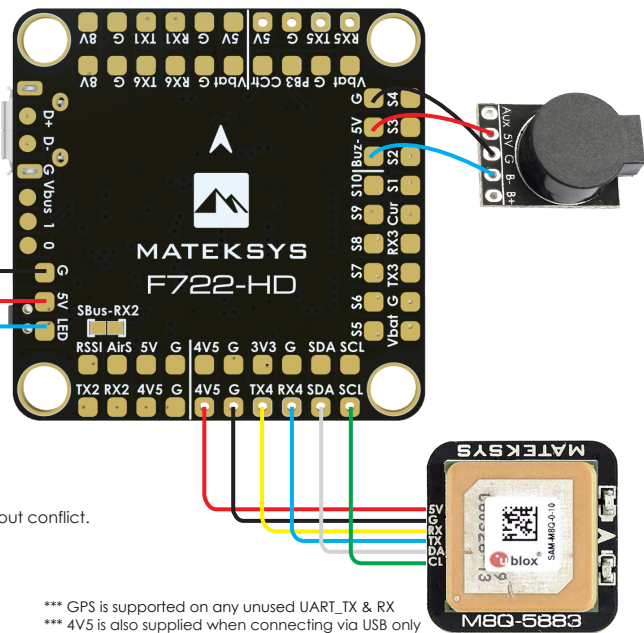
*** If using Frsky SBUS receiver, Enable "softserial" in configuration tab to get softserial_tx1 on Tx2 pad for SmartPort
 *** SBUS/IBUS/DSM can be connected to any unused UART_RX
 *** FPort, SmartPort can be connected to any unused UART_TX
 *** PPM share Rx2 pad, must disable Serial RX on UART2



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



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	☒ MSP 115200	☐	Disabled AUTO	Disabled AUTO
UART1	☐ MSP 115200	☐	Disabled AUTO	Disabled AUTO
UART2	☐ MSP 115200	☒	Disabled AUTO	Disabled AUTO
UART3	☐ MSP 115200	☐	Disabled AUTO	Disabled AUTO
UART4	☐ MSP 115200	☐	Disabled AUTO	GPS AUTO
UART5	☐ MSP 115200	☐	Disabled AUTO	Disabled AUTO
UART6	☒ MSP 115200	☐	Disabled AUTO	Disabled AUTO
SOFTSERIAL1	☐ MSP 115200	☐	Disabled AUTO	Disabled AUTO

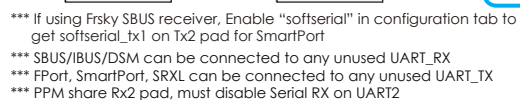
Identifier	Data	Telemetry	RX	Sensors	Peripherals
USB VCP	☒ MSP 115200	Disabled AUTO	☐ Serial RX	Disabled 115200	Disabled 115200
UART1	☒ MSP 115200	Disabled AUTO	☐ Serial RX	Disabled 115200	Disabled 115200
UART2	☐ MSP 115200	Disabled AUTO	☒ Serial RX	Disabled 115200	Disabled 115200
UART3	☐ MSP 115200	Disabled AUTO	☐ Serial RX	Disabled 115200	Disabled 115200
UART4	☐ MSP 115200	Disabled AUTO	☐ Serial RX	GPS 115200	Disabled 115200
UART5	☐ MSP 115200	Disabled AUTO	☐ Serial RX	Disabled 115200	Disabled 115200
UART6	☐ MSP 115200	Disabled AUTO	☐ Serial RX	Disabled 115200	INAV 115200
SOFTSERIAL1	☐ MSP 115200	Disabled AUTO	☐ Serial RX	Disabled 115200	Disabled 115200

8V output switch (BetaFlight/INAV)



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

BetaFlight unified target MATEKF722HD

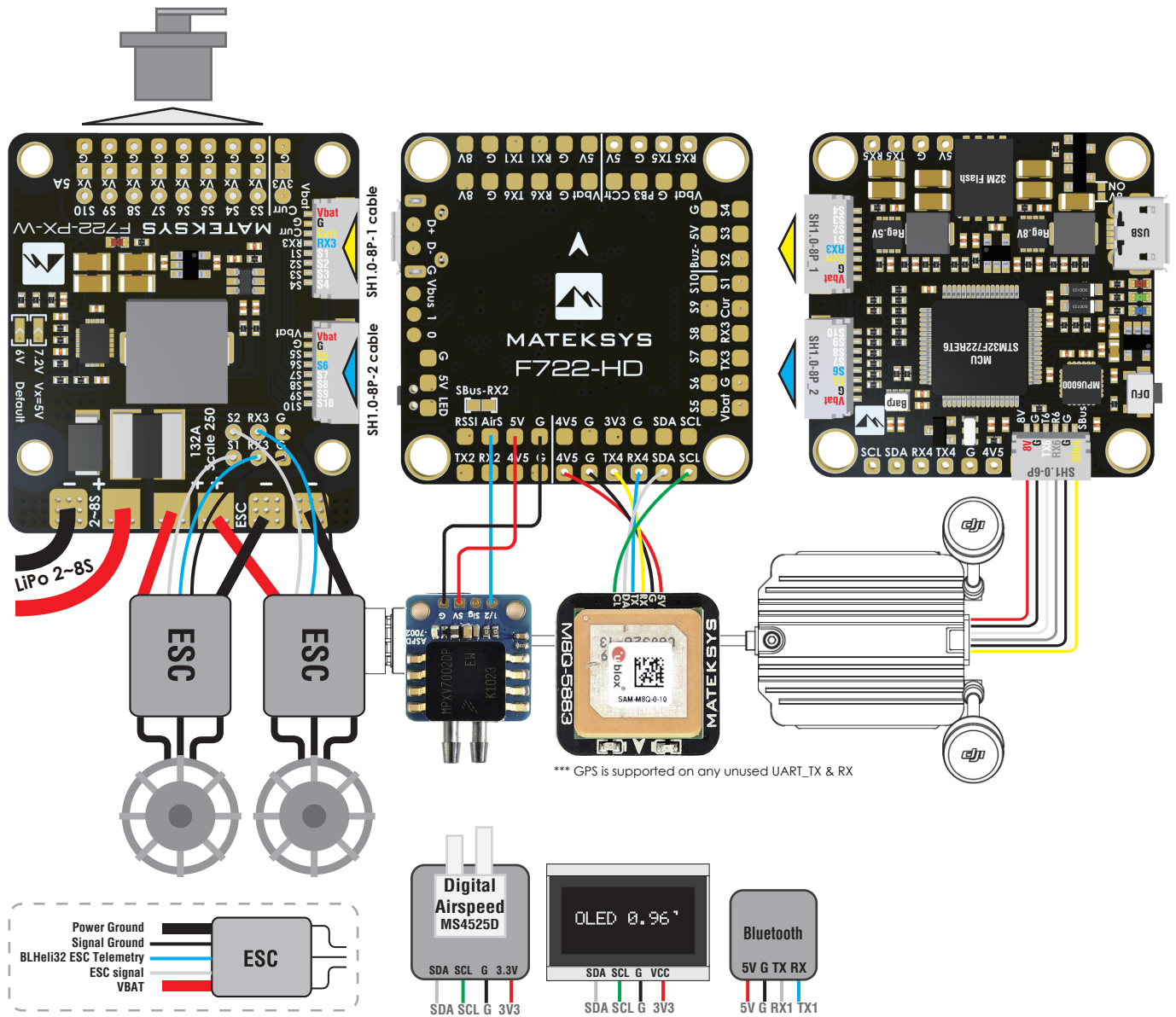


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on SH1.0-6P connector

*** GPS is supported on any unused UART_TX & RX
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Wiring (Airplane)



Wiring (FrskyOSD)

