

MATEKSYS F722 Flight Controller User Guide

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MATEKSYS FLIGHT CONTROLLER F722-miniSE QUICK START GUIDE

MCU: STM32F722RET6
IMU: MPU6000
OSD: AT7456E
Barometer: Infineon DPS310
Blackbox: 32M-byte Flash memory
5x Uarts (1,2,3,4,6) with built-in inversion
1x Softserial supported
8x Dshot/Proshot/oneshot outputs
1x I2C
1x SH1.0_8pin connector (Vbat/G/Curr/R6/S1/S2/S3/S4)
Vbat filtered output power for VTX, switchable via AUX (modes tab-user1)
Dual Camera image switchable via AUX (modes tab-user2)
Camera control
Smartaudio & Tramp VTX protocol
WS2812 Led Strip
Beeper
RSSI
INAV Analog airspeed
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

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LAYOUT

C1: Camera-1 video IN (Default)

C2: Camera-2 video IN

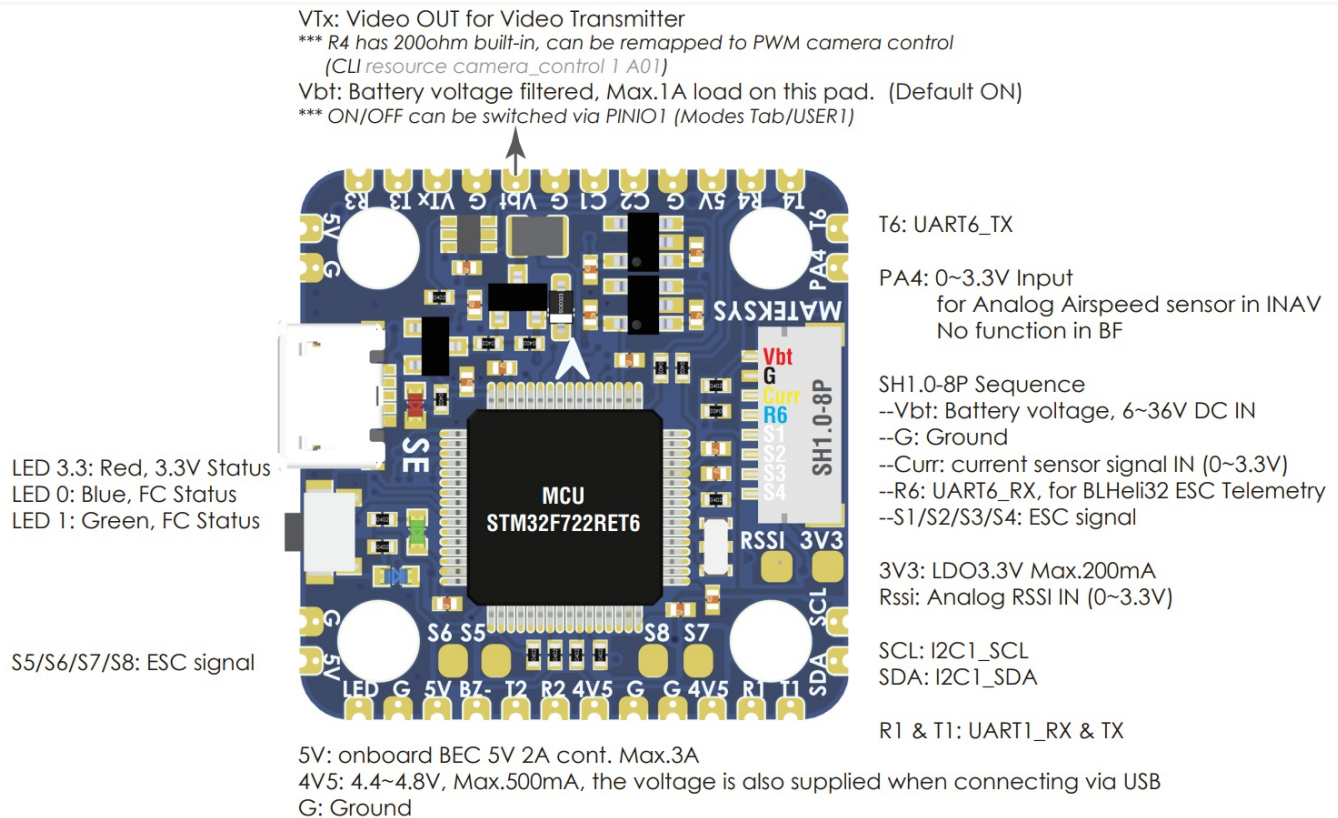
*** C1/C2 can be switched via PINIO2 (Modes Tab/USER2)

*** Two cameras must run with identical video format, both PAL or both NTSC

G/Gnd: Ground

R3 & T3: UART3_RX & TX

R4 & T4: UART4_RX & TX



R2: UART2_RX for Serial RX by default, PPM share R2 pad

T2: UART2_TX

*** T2 can be remapped to softserial_tx1 to get one more Uart for Frsky SmartPort

(CLI resource SERIAL_TX 11 A02)

*** F722 UART ports have built-in inversion, SBUS / IBUS / DSM works with any spare UART_RX.

*** Frsky FPort / SmartPort / Tramp / SA works with any spare UART_TX

*** GPS / CRSF / DJI OSD works with any spare UART_TX & RX

Buz- & 5V: General active 5V buzzer

Buz- /5V/G: Matek DBUZ5V

LED: 2812 LED signal Out

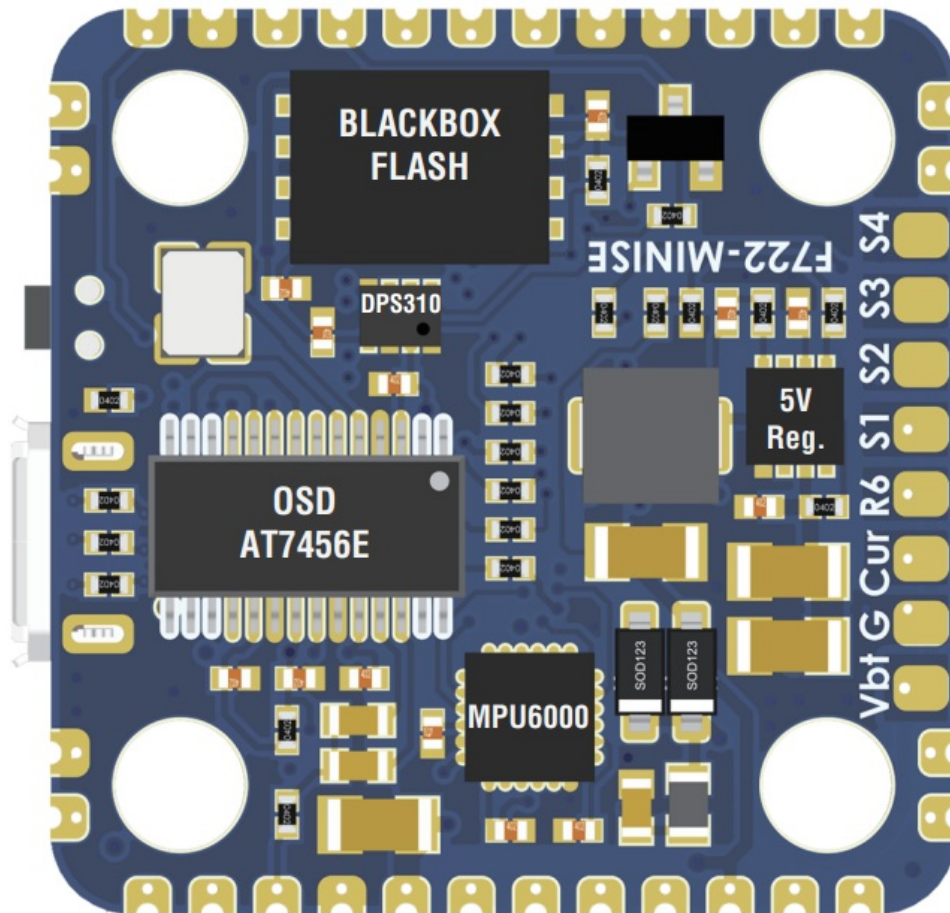
Target

INAV target: MATEKF722MINI

BetaFlight unified target: MATEKF722mini(MTKS)

BetaFlight legacy target: MATEKF722SE

*** CLI defaults after reflashing



Size & Weight: 28x28mm /5g

Holes: Φ 4mm, 20mm x 20mm

Packing

1x F722-miniSE

1x 20mm to 30.5mm conversion plate

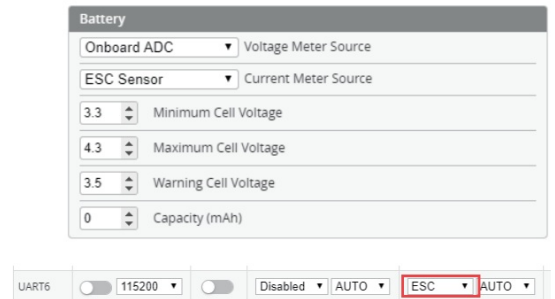
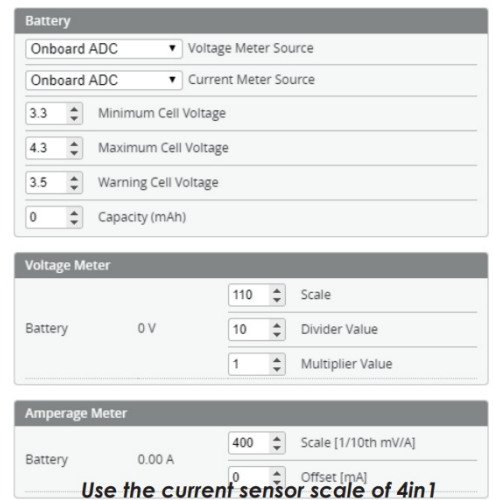
1x SH1.0_8pin cable 5cm

2x SH1.0_8pin connector

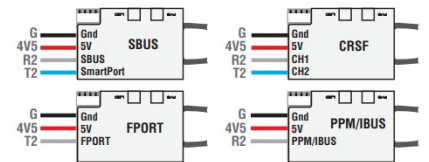
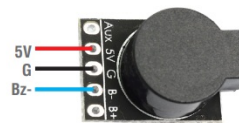
6x M3 Silicon Grommets

6x M2 Brass Grommets

Wiring



The diagram illustrates the connection of two cameras to a Raspberry Pi 3B+ using a MATEKSYS SH1.0-8P camera module. The top module is connected to Camera-1 and Camera-2. The bottom module is connected to the Pi's I2C pins (SDA, SCL) and ground.



```
*** BF CLI resource serial_tx1 11 A02
    to get softserial_tx1 on T2 pad for SmartPort
*** SBUS / IBUS / DSM works with any spare UART_RX.
*** FPort / SmartPort / Tramp / SA works with any spare UART_TX
*** PPM share R2 pad, must disable Serial RX on UART2

*** GPS / CRSF / DJI OSD works with any spare UART_TX & RX
```

Identifier	Configuration/MSP	Serial Rx	Telemetry Output		Sensor Input		Peripherals	
USB VCP	 115200 ▾		Disabled ▾	AUTO ▾	Disabled ▾	AUTO ▾	Disabled ▾	AUTO ▾
UART1	 115200 ▾		Disabled ▾	AUTO ▾	GPS ▾	57600	Disabled ▾	AUTO ▾
UART2	 115200 ▾		Disabled ▾	AUTO ▾	Disabled ▾	AUTO ▾	Disabled ▾	AUTO ▾
UART3	 115200 ▾		Disabled ▾	AUTO ▾	Disabled ▾	AUTO ▾	IRC Tramp ▾	AUTO ▾
UART4	 115200 ▾		Disabled ▾	AUTO ▾	Disabled ▾	AUTO ▾	Disabled ▾	AUTO ▾
UART6	 115200 ▾		Disabled ▾	AUTO ▾	ESC ▾	AUTO ▾	Disabled ▾	AUTO ▾
SOFTSERIAL1	 115200 ▾		SmartPort ▾	AUTO ▾	Disabled ▾	AUTO ▾	Disabled ▾	AUTO ▾

VTX Power / Camera switch

USER1 Add Range	No USER1 definition Vbt(for VTx) ON by default		USER1 Add Range	AUX 2 Min: 900 Max: 1200	
USER2 Add Range	No USER2 definition C1 (Camera-1) ON by default		USER2 Add Range	AUX 2 Min: 1725 Max: 2100	



MATEKSYS

www.mateksys.com

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Documents / Resources

	MATEKSYS F722 Flight Controller [pdf] User Guide F722, Flight Controller
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References

- [Matek Systems – Advanced Drone Systems](#)