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

LAYOUT

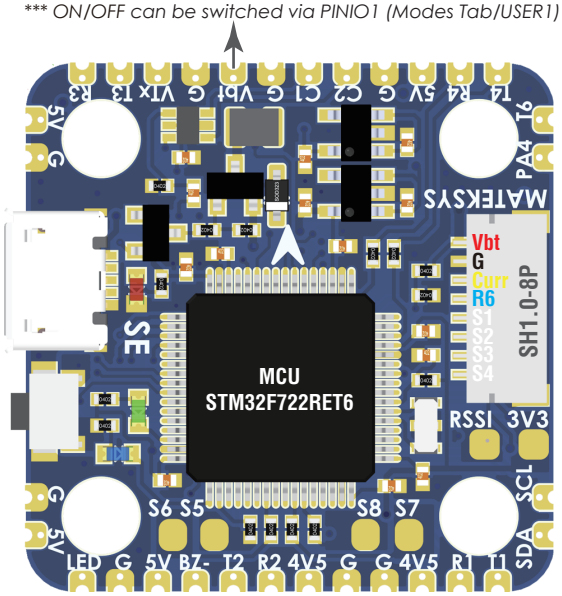
C1: Camera-1 video IN (Default)
C2: Camera-2 video IN
**** C1/C2 can be switched via PINIO2 (Modes Tab/USER2)*
**** Two cameras must run with identical video format, both PAL or both NTSC*

G/Gnd: Ground
R3 & T3: UART3_RX & TX
R4 & T4: UART4_RX & TX

VTx: Video OUT for Video Transmitter
**** R4 has 200ohm built-in, can be remapped to PWM camera control*
(CLI resource camera_control 1 A01)
Vbt: Battery voltage filtered, Max.1A load on this pad. (Default ON)
**** ON/OFF can be switched via PINIO1 (Modes Tab/USER1)*

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

S5/S6/S7/S8: ESC signal



T6: UART6_TX

PA4: 0~3.3V Input
for Analog Airspeed sensor in INAV
No function in BF

SH1.0-8P Sequence
--Vbt: Battery voltage, 6~36V DC IN
--G: Ground
--Curr: current sensor signal IN (0~3.3V)
--R6: UART6_RX, for BLHeli32 ESC Telemetry
--S1/S2/S3/S4: ESC signal

3V3: LDO3.3V Max.200mA
Rssi: Analog RSSI IN (0~3.3V)

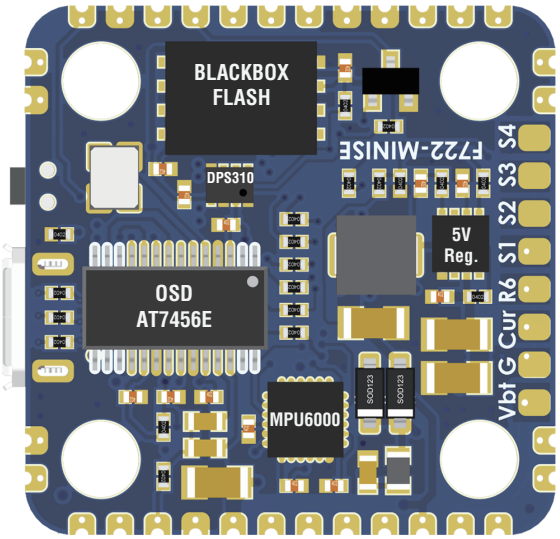
SCL: I2C1_SCL
SDA: I2C1_SDA

R1 & T1: UART1_RX & TX

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

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



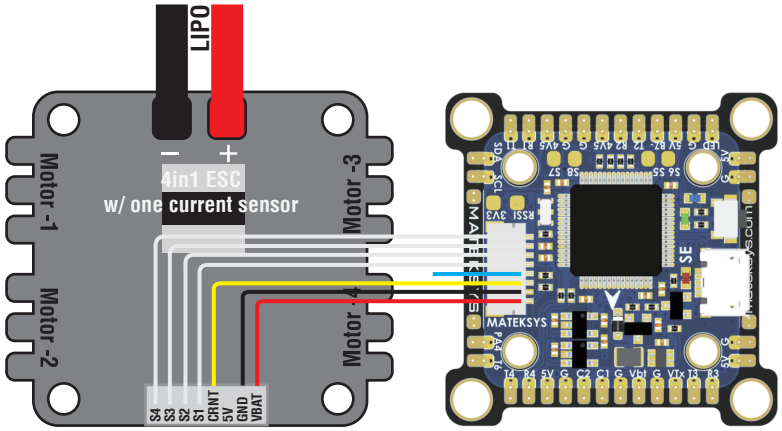
Target

INAV target: MATEKF722MINI
BetaFlight unified target: MATEKF722mini(MTKS)
BetaFlight legacy target: MATEKF722SE
*** CLI defaults after reflashing

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



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)

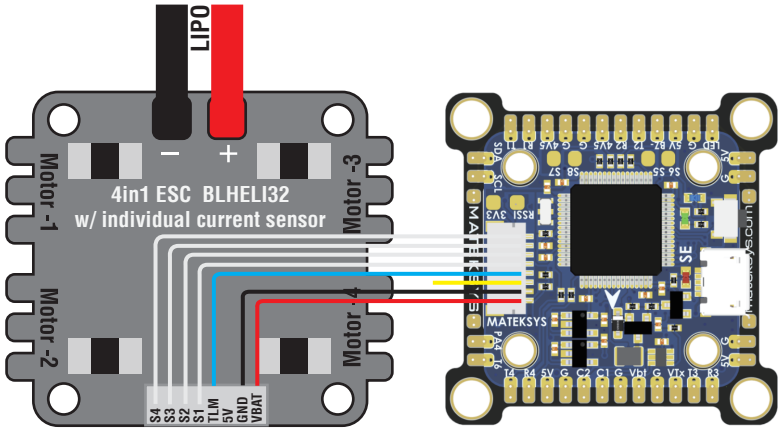
Voltage Meter

Battery	0 V	110	Scale
		10	Divider Value
		1	Multiplier Value

Amperage Meter

Battery	0.00 A	400	Scale [1/10th mV/A]
		0	Offset [mA]

Use the current sensor scale of 4in1

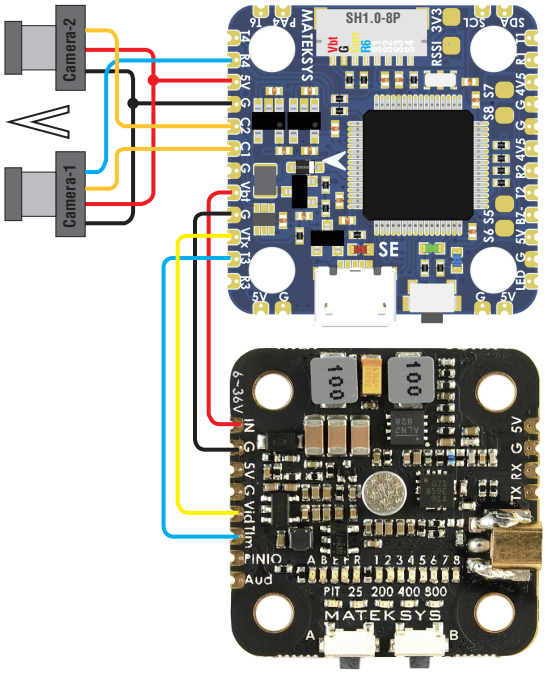


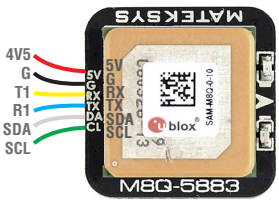
Battery

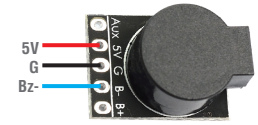
Onboard ADC	Voltage Meter Source
ESC Sensor	Current Meter Source
3.3	Minimum Cell Voltage
4.3	Maximum Cell Voltage
3.5	Warning Cell Voltage
0	Capacity (mAh)

UART6	115200		Disabled	AUTO	ESC	AUTO

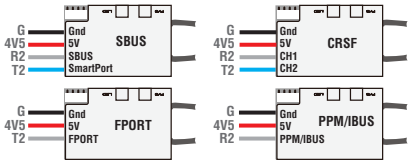
*** R4 pad has 200ohm built-in, can be remapped to PWM camera control
(BetaFlight CLI resource camera_control 1 A01)











*** BF CLI resource serial_tx 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	5V G C2 C1 G Vbt G VTx
USER2 Add Range	No USER2 definition C1 (Camera-1) ON by default	

