



MATEKSYS

FLIGHT CONTROLLER F722-WING

QUICK START GUIDE

MCU: 216MHz STM32F722RET6
IMU: MPU6000 (SPI)
Baro: BMP280 (I2C)
OSD: AT7456E (SPI)
Blackbox: MicroSD card slot (SPI)

5x Uarts (1,2,3,4,6) with built-in inversion
1x Softserial_Tx option
2x Motors & 6x Servos outputs
1x I2C
4x ADC (VBAT, Current, RSSI, AirSpeed)

Switchable Dual Camera Inputs
Switchable 5V/9V for Camera/VTX

9~36V DC IN (3~8S LiPo)
High-precision Current Sense 132A Range
BEC 5V 2A for FC
BEC 9V 2A for camera/VTX, 12V option
BEC Vx 5A for servos, 5V, 6V or 7.2V option
LDO 3.3V 200mA

LAYOUT

+ & - : Battery & ESC power pads, 9~36V DC(3~8S LIPO).
 S7/S8: ESC signal for motor 1 & 2
 G: ESC signal ground
 N: No circuit on this pad
 Voltage meter scale: 1100
 Current Sensor: 132A (Scale 250)

AirS: Analog Airspeed sensor (0~6.6V)
 1:1 divider resistance built-in
 Bz- & 5V: General active 5V buzzer
 Bz-, 5V & G: Matek Dbuz5V
 LED: WS2812 LED signal output
 Rssi: Frsky RSSI input

SCL & SDA: I2C1, for compass and Digital AirSpeed
 *** compass HMC5883 /MAG3110 /QMC5883 /IST8310
 *** Digital AirSpeed sensor Pitot_MS4525

5V: onboard BEC 5V 2A cont. Max.3A
 4V5: 4.4~4.8V,
 *** the voltage is also supplied when connecting via USB
 3.3: LDO3.3V 200mA
 G: Ground

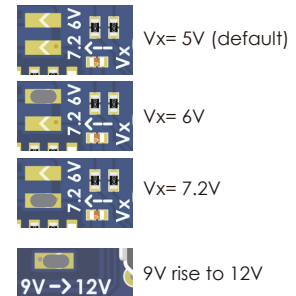
TX1/RX1: UART1
 TX3/RX3: UART3

RX2: UART2-RX for Serial_RX by default
 PPM share RX2 pad
 TX2: UART2-TX w/o Softserial enabled
 TX2: Softserial_TX1 w/ CPU based serial ports enabled

*** F722 MCU has inner inversion, SBUS can be connected to any unused UART_RX.
 *** Frsky FPort, SmartPort, TR/SA VTX control can be connected to any unused UART_TX
 *** GPS can be connected to any unused UART_TX & RX

S1/S2/S3/S4/S5/S6: Servo signal
 Vx: onboard BEC 5V/6V/7.2V
 5A cont. Max.6A
 for servos, Default is 5V

TX6/RX6: UART6
 TX4/RX4: UART4
 5V: onboard BEC 5V
 G: Ground



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

Button: Boot(DFU) mode button

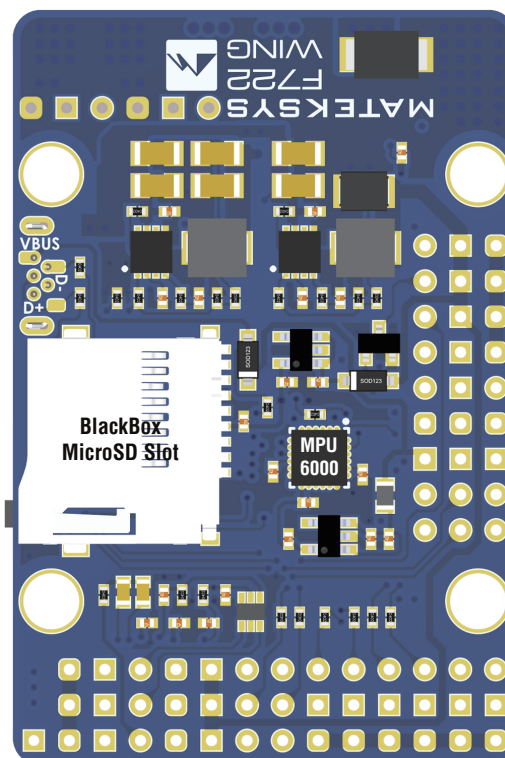


Vsw: 9V/5V selection for HD camera
 *** ON/OFF can be switched via Modes/USER1
 *** Max.1A load on this pad. (Default ON)

C1: Camera-1 video IN (Default)
 C2: Camera-2 video IN
 *** C1/C2 can be switched via Modes/USER2

VTX: Video OUT for Video Transmitter

9V: onboard BEC 9V 2A cont. Max.3A,
 *** 9V rise to 12V if "9V->12V" jumper is bridged.



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

Size: 54x36x13mm
 Weight: 25g w/ top and bottom plate
 Holes: Φ4mm, 30.5mm mounting
 M3 Silicon Grommets included

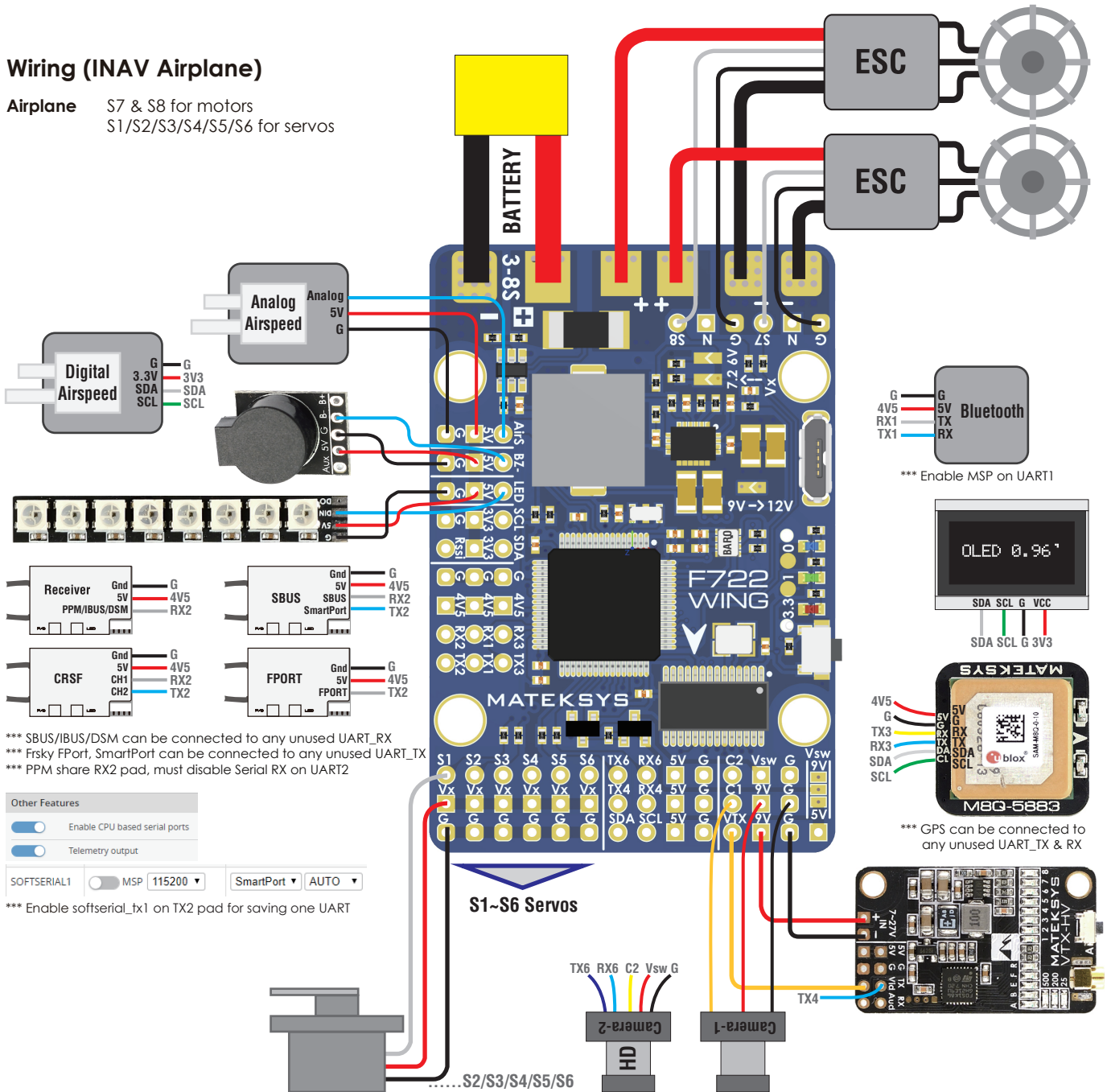
Target

INAV/BetaFlight: MATEKF722SE

*** CLI defaults after reflashing

Wiring (INAV Airplane)

Airplane S7 & S8 for motors
S1/S2/S3/S4/S5/S6 for servos



Other Features

☒ Enable CPU based serial ports

☒ Telemetry output

SOFTSERIAL1 ☐ MSP 115200 SmartPort AUTO

*** Enable softserial_tx1 on TX2 pad for saving one UART

Identifier	Data	Telemetry	RX	Sensors	Peripherals
USB VCP	☒ MSP 115200	Disabled AUTO	☐ Serial RX	Disabled 115200	Disabled 115200
UART1	☒ MSP 57600	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	GPS 115200	Disabled 115200
UART4	☐ MSP 115200	Disabled AUTO	☐ Serial RX	Disabled 115200	IRC Tramp 115200
UART6	☐ MSP 115200	Disabled AUTO	☐ Serial RX	Disabled 115200	RunCam Device 115200
SOFTSERIAL1	☐ MSP 115200	SmartPort AUTO	☐ Serial RX	Disabled 115200	Disabled 115200

Vsw Power / Camera switcher

USER1	No USER1 definition Vsw ON by default
USER2	No USER2 definition C1 (Camera-1) ON by default

USER1 CH 8 Vsw OFF Vsw ON

Min: 900 Max: 1250

USER2 CH 5 C1 ON & C2 OFF C2 ON & C1 OFF

Min: 1725 Max: 2100