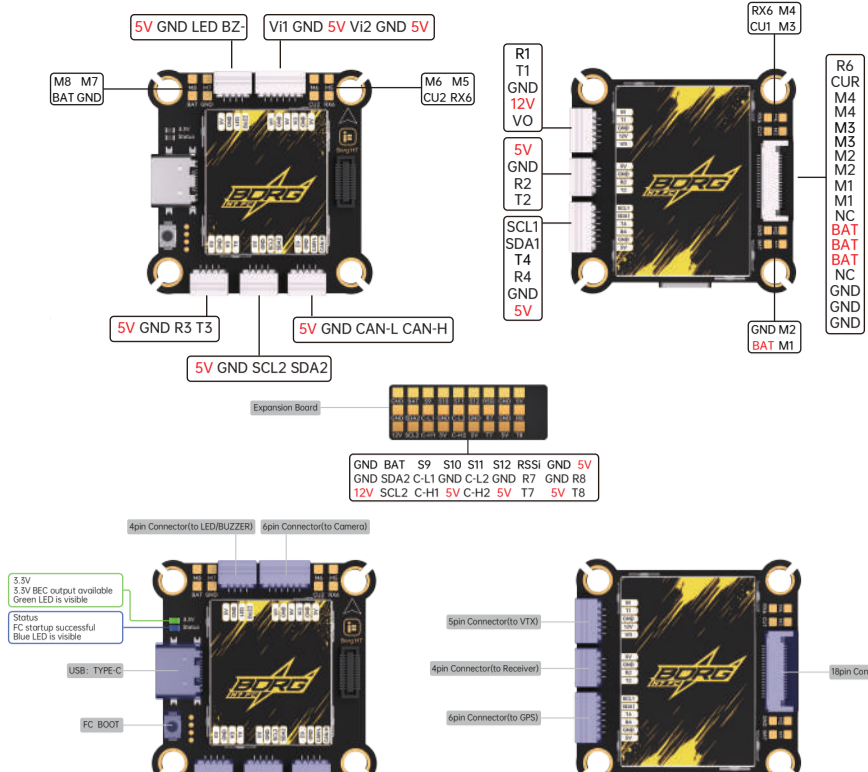


# iFlight Borg H7 FC Wiring diagram

## Parameters:

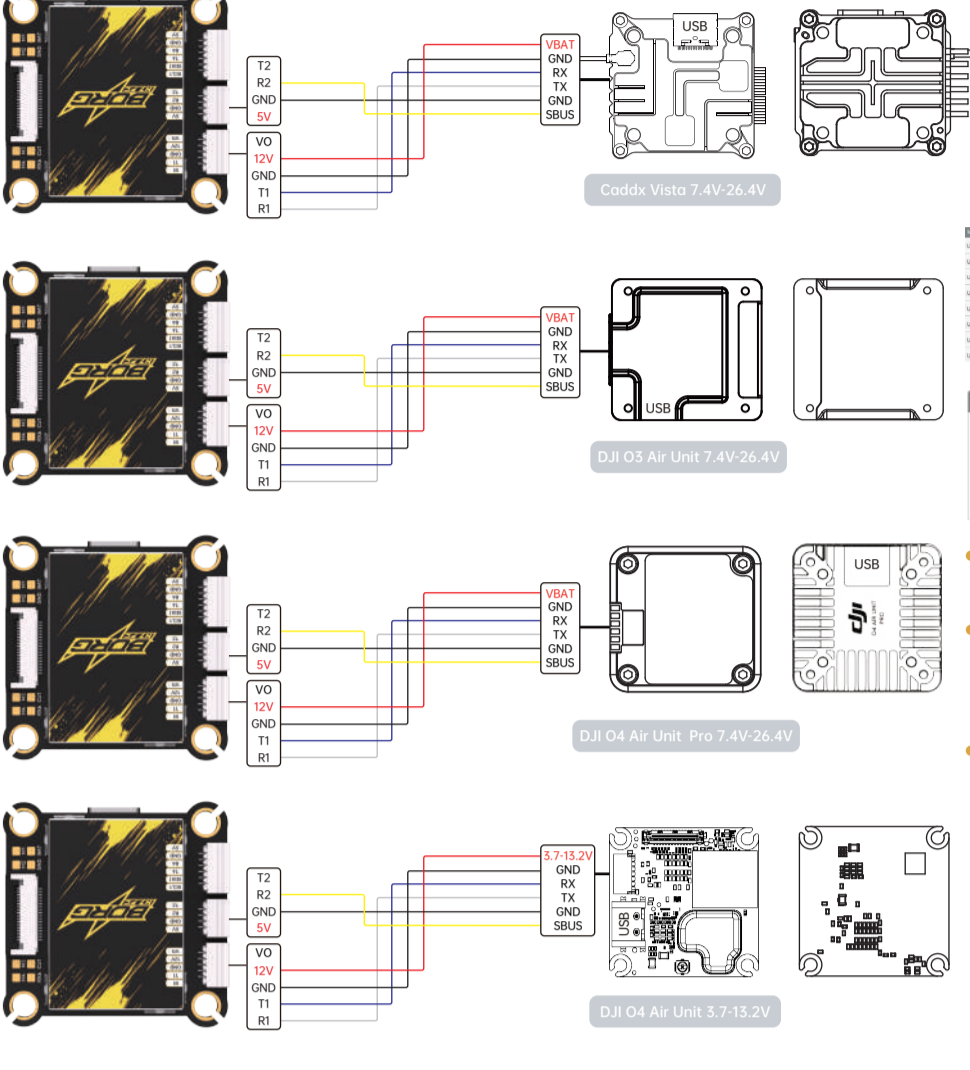
FC Specifications  
 Input voltage: 4-12S, Support LHV battery  
 Dimensions: 37.5\*37.5mm  
 Mount pattern: 30.5\*30.5mm  
 Weight: 17g  
 MCU: STM32F429V6  
 Gyro: ICM42688\*2  
 Baro: SPA06-003  
 OSD: AT7456E (LGA)  
 Blackbox: 32MB  
 Motor outputs: 8  
 I2C: I2C\*2 CAN: CAN\*2  
 RSSI ADC input: Yes  
 BEC: 5V 2.5A, 12V 2A (12V with VTX switch)  
 LED Strip: Supported  
 Buzzer: Yes  
 VTX protocol: Support DJI MSP/Smauudio/RC/Tamp/HZZero  
 UARTs: 7  
 UART: 7\*UART (UART1, UART2, UART3, UART4, UART6, UART7, UART8)  
 UART1: VTX I/O Analog  
 UART2: Receiver  
 UART3: GPS or other sensors that require a serial port  
 UART4: GPS  
 UART6: ESC Telemet  
 UART7/UART8: GPS or other sensors that require a serial port  
 VTX\_ON/OFF Mode Command:  
 resource PINIO D10  
 set pinio\_config = 1,1,1,1  
 set pinio\_box = 40,41,255,255  
 set box\_user\_1\_name = VTX\_ON/OFF  
 aux 0 40 8 900 2100 0 0  
 save

Firmware:  
 Betaflight: iFLIGHT\_BORG\_H7  
 NAV: iFLIGHT\_BORG\_H7



## DJI Digital Transmitters: SUBS Protocol

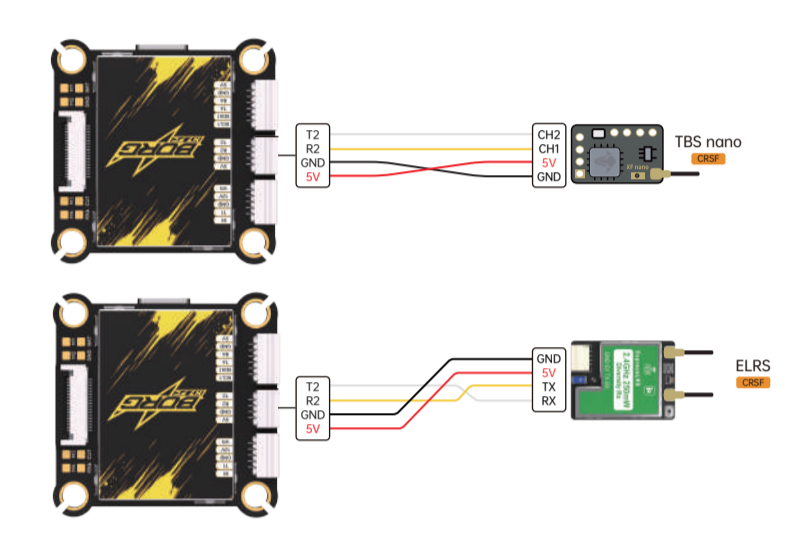
Firmware Target: iFLIGHT\_BORG\_H7



Receiver	Protocol	Serial	Receiver Mode	Telemetry
Receiver 1	Subst	115200	Serial (via UART)	TELEMETRY
Receiver 2	Subst	115200	Serial (via UART)	TELEMETRY
Receiver 3	Subst	115200	Serial (via UART)	TELEMETRY
Receiver 4	Subst	115200	Serial (via UART)	TELEMETRY
Receiver 5	Subst	115200	Serial (via UART)	TELEMETRY
Receiver 6	Subst	115200	Serial (via UART)	TELEMETRY
Receiver 7	Subst	115200	Serial (via UART)	TELEMETRY
Receiver 8	Subst	115200	Serial (via UART)	TELEMETRY
Receiver 9	Subst	115200	Serial (via UART)	TELEMETRY
Receiver 10	Subst	115200	Serial (via UART)	TELEMETRY

- To enable the air unit OSD under Betaflight 4.4 version, you need to select VTX (MSP+Displayport) in the peripheral port where the air unit signal is connected to the port interface.
- Please check your protocols, otherwise your DJI Radio won't input signals!
- DJI Goggle protocol and Betaflight protocol has to match! For lower signal latency use the SBUS BAUD\_FAST protocol option on both ends.
- For Betaflight Copy Paste "set sbus\_baud\_fast=on" into your Betaflight Configuration CLI then hit enter. Use "save" and hit enter to save the changes. Default: sbus\_baud\_fast=off, Goggle protocol set to NORMAL.

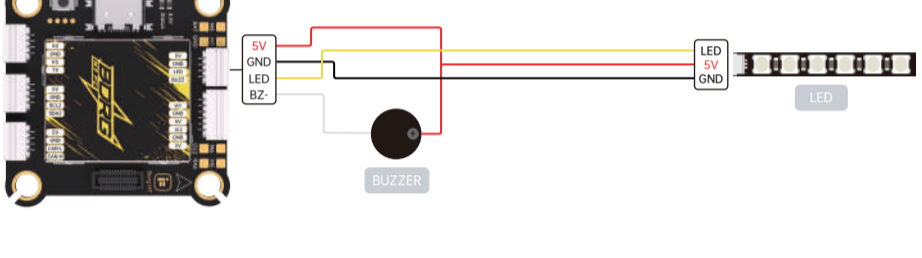
## Others Receivers(TBS/ELRS): CRSF Protocol



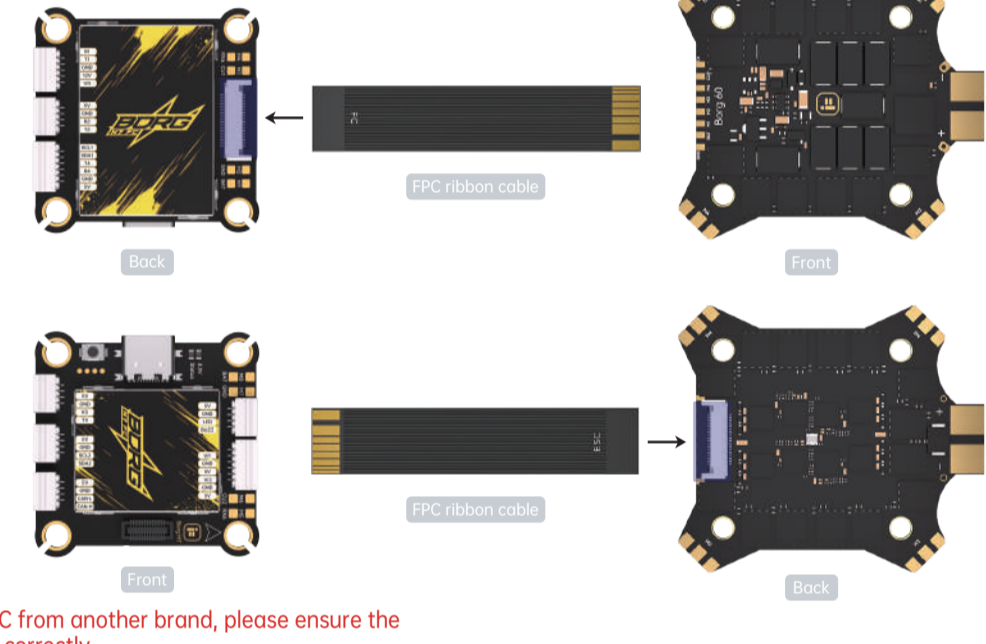
Receiver	Protocol	Serial	Receiver Mode	Telemetry
Receiver 1	CRSF	115200	Serial (via UART)	TELEMETRY
Receiver 2	CRSF	115200	Serial (via UART)	TELEMETRY
Receiver 3	CRSF	115200	Serial (via UART)	TELEMETRY
Receiver 4	CRSF	115200	Serial (via UART)	TELEMETRY
Receiver 5	CRSF	115200	Serial (via UART)	TELEMETRY
Receiver 6	CRSF	115200	Serial (via UART)	TELEMETRY
Receiver 7	CRSF	115200	Serial (via UART)	TELEMETRY
Receiver 8	CRSF	115200	Serial (via UART)	TELEMETRY
Receiver 9	CRSF	115200	Serial (via UART)	TELEMETRY
Receiver 10	CRSF	115200	Serial (via UART)	TELEMETRY

Receiver Configuration: Serial (via UART), Receiver Mode, Telemetry output (TELEMETRY).

## LED/BUZZER



## ESC



Note: If using an ESC from another brand, please ensure the wiring is connected correctly.

## VTX/CAM

VBAT GND RX TX GND SBUS  
 V0 12V GND T1 R1  
 V11 GND V12 GND VIDEO  
 Camera In GND 5V out Camera out Video In IRC GND T1 R1 Vbat  
 V11 GND 5V GND VIDEO  
 V12 GND 5V GND VIDEO

DJI O4 Air Unit Pro 7.4V-26.4V

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
VTX ON/OFF	AUX 9				
VTX ON, OFF	AUX 9				VTX (IRC Trans) AUTO
VTX ON, OFF	AUX 9				Disabled
VTX ON, OFF	AUX 9				Benevake LIDAR
VTX ON, OFF	AUX 9				Blackbox logging
VTX ON, OFF	AUX 9				Camera (Run-Cam Protocol)
VTX ON, OFF	AUX 9				OSD (FISky Protocol)
VTX ON, OFF	AUX 9				VTX (MSP+Displayport)
VTX ON, OFF	AUX 9				VTX (TBS SmartAudio)
VTX ON, OFF	AUX 9				VTX (TBS SmartAudio)

VTX ON, OFF: Min: 900, Max: 2100  
 VTX ON, OFF: Min: 1600, Max: 2100  
 VTX ON, OFF: Min: 1600, Max: 2100  
 CAM\_SW: Min: 900, Max: 2100  
 CAM\_SW: Min: 1600, Max: 2100  
 CAM\_SW: Min: 1600, Max: 2100

- 12V is a controllable AUX output port. The default factory setting is AUX9, this mode is always on. Users can set the AUX channel according to actual needs.
- VTX\_ON\_OFF Mode On
- VTX\_ON\_OFF Mode Off
- To use the VTX\_ON/OFF or camera switching function, adjust the channel range to 1600-2000. A yellow icon indicates the function is enabled, while a gray icon means it is disabled.
- The flight controller supports dual-camera switching. By default, full-channel activation outputs V1, with the channel set to AUX10. Users can set the AUX channel according to actual needs.
- Enable V1 Camera
- Enable V2 Camera
- A yellow icon indicates V1 camera is enabled, while a gray icon means V2 camera is enabled.

⚠ Note: When using dual cameras, ensure both cameras are fully powered. Inconsistent wiring may cause the OSD to fail to load. Refer to the following manual when restoring the default factory settings requires manually entering the following commands in Betaflight CLI:

VTX\_ON\_OFF Mode command:  
 resource PINIO D10  
 set pinio\_config = 1,1,1,1  
 set pinio\_box = 40,41,255,255  
 set box\_user\_1\_name = VTX\_ON/OFF  
 aux 0 40 8 900 2100 0 0  
 save

Camera switch command:  
 resource PINIO D11  
 set pinio\_config = 1,1,1,1  
 set pinio\_box = 40,41,255,255  
 set box\_user\_2\_name = CAM\_SW  
 aux 1 41 9 900 2100 0 0  
 save

## GPS

5V GND R4 T4 SCL1  
 TX RX GND 5V  
 SDA SCL

GPS Configuration: UBXLOX, Protocol, Auto Config, Use Carriage, Set Home Point Once, Auto-detect, Ground assistance type

SDA/SCL pads can not be remapped to UARTs

## Dimensions/Mounting pattern

