

TBS Crossfire - MAVLink over WiFi Revision 2020-08-18

The built-in Bluetooth module of the standard Crossfire transmitter was the only way to connect your Crossfire to a pc or mobile phone for live telemetry and wireless configuration. Now you can use the WiFi module which is build-in to **all** CROSSFIRE transmitters.

What you need

- TBS CROSSFIRE transmitters on FW 3.75 (beta) or later **with WiFi module**
- WiFi module on FW 1.15 or later - [how to upgrade it](#)
- Flight controller with a MAVLink capable firmware (e.g. Ardu, PX4 or Inav) or CRSf telemetry
- Ground control software like [Mission Planner](#) or [QGroundControl](#)

General Crossfire Settings

Transmitter Settings:

- OP Mode: normal
- WiFi: active

Receiver settings:

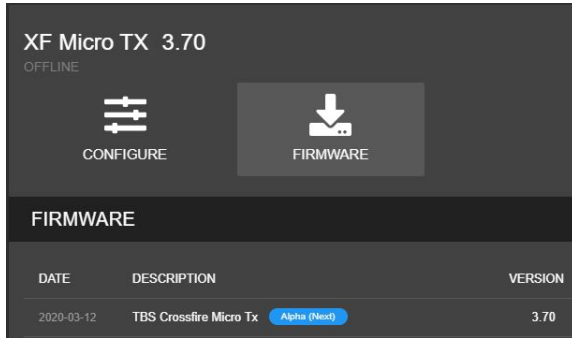
- RF Profile: dynamic/ forced 150hz*

**This is only necessary during the connection to your ground control software if you use a MAV firmware on your fc. They request all parameters at the first connection which can cause timeout issues in 50hz mod. After all parameters are loaded, you can switch back to your regular settings or leave the crossfire in dynamic mode.*

If you use CRSF you will get data in your app for live-telemetry.



Setup



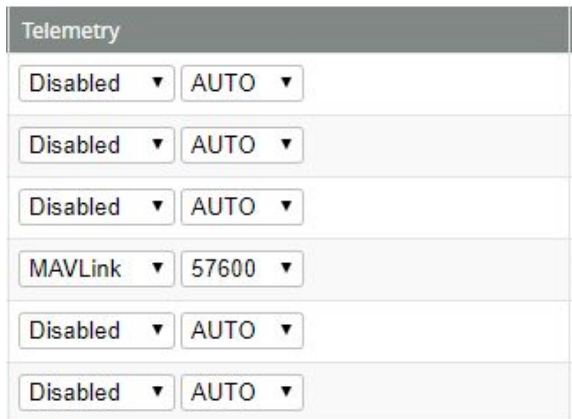
Update your CROSSFIRE TX to FW 3.80 (or later) by Agent X. If you can't see the required FW version, click on the 3 dots in the top right corner and check "include beta releases".

Make sure that the WiFi module is powered up as well (Standard Tx).

Also update your WiFi module to FW 1.17



Connect your CROSSFIRE to a hotspot via the built-in WiFi module. You can provide access point information from your nearest wifi hotspot, or create a temporary one on your phone. Connect your pc to the same network. **OR** connect your pc/ mobile phone straight to the CROSSFIRE access point.



Connect your CROSSFIRE to the FC by MAVLink and enable the port in the software. Note: BetaFlight and Inav can use CRSF instead for live telemetry [Wiring example in the attachments](#)



| | |
|----------|------------|
| Output 1 | CRSF TX |
| Output 2 | CRSF RX |
| Output 3 | MAVLink Rx |
| Output 4 | MAVLink TX |
| Output 5 | BST SDA |
| Output 6 | BST SCL |

Adjust the output-map of the CROSSFIRE receiver to MAVLink TX/RX according to the [output map table](#).

If you use a non-MAVLink firmware on your fc, you need to use CRSF for RC data and LUA support and a MAVLink connection as well

Set the connection type of your ground control software to **UDP, port 8888****

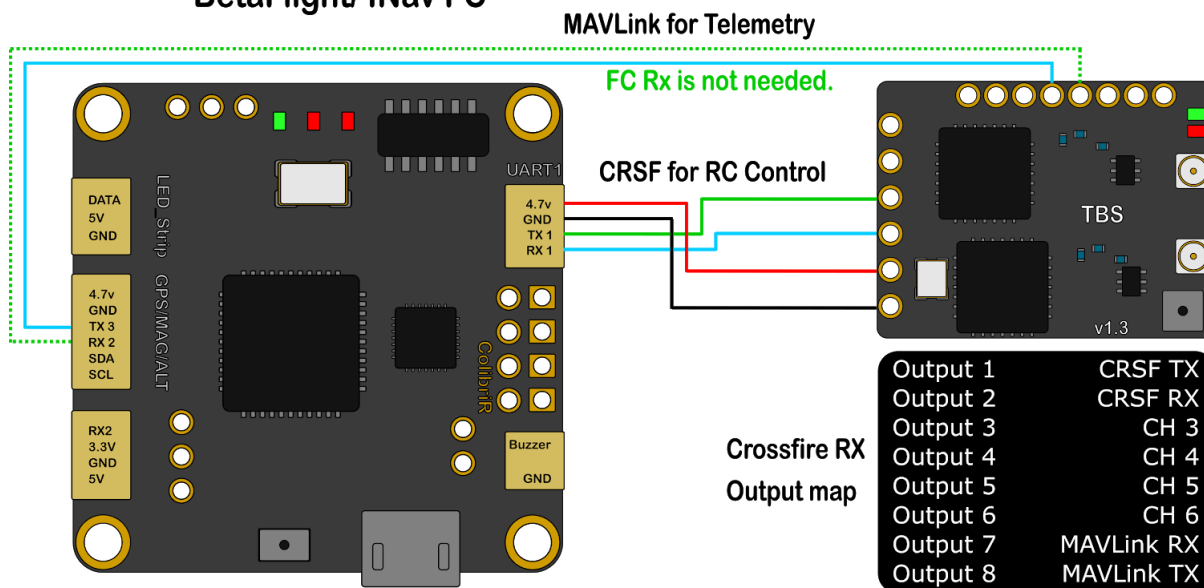
Depending on the software you use, you need to enter the port number after starting the connection (MissionPlanner) or in the connection settings (QGroundControl)

*By CRSF you will only get Telemetry sensor values in your GCS. You can use this for live-telemetry
 **the port can be changed in the settings of the WiFi module. Only change it if you know what you are doing

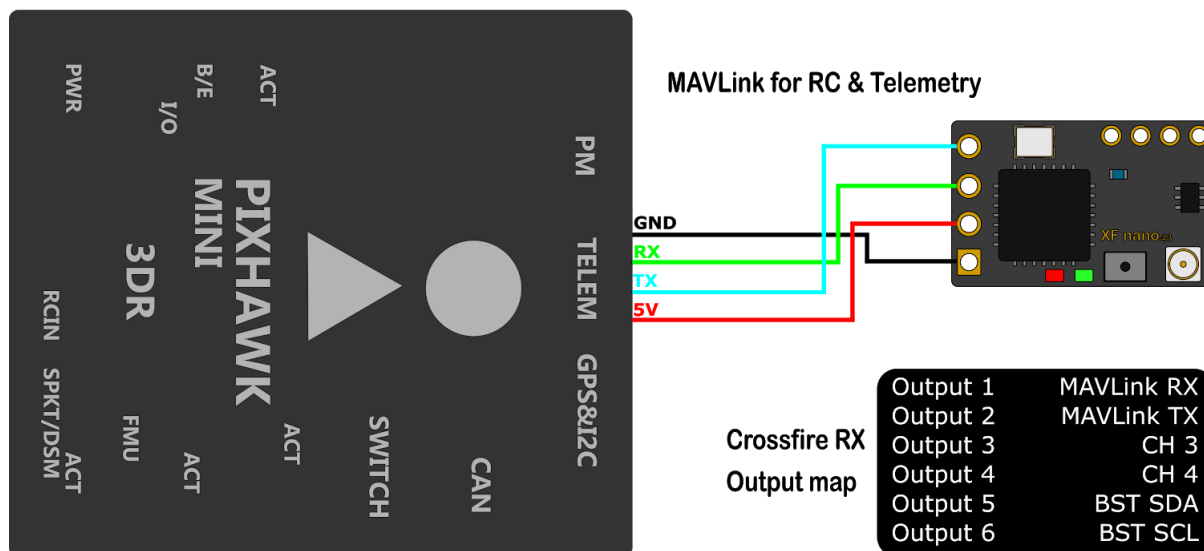


Wiring examples

BetaFlight/ INav FC



Ardu/ PX4 FC



Receiver Output Map

Each receiver is capable of outputting mavlink on several pins. Just change one TX pin to MAVLink TX, the associated RX pin will be changed by the CROSSFIRE.

| Receiver pin | Output type Diversity RX (standard) | Default value |
|--------------|--|---------------|
| 3 | PWM Ch1 to 12, RSSI, LQ, RSSI/LQ, SBUS, n.i.SBUS, Serial TX, MAVLink TX , CRSF TX, SmartAudio | PWM Ch. 3 |
| 4 | PWM Ch1 bis 12, RSSI, LQ, RSSI/LQ, Serial RX, MAVLink RX , CRSF RX | PWM Ch. 4 |
| 7 | PWM Ch1 bis 12, RSSI, LQ, RSSI/LQ, Serial RX, MAVLink RX , CRSF RX | PWM Ch. 7 |
| 8 | PWM Ch1 to 12, RSSI, LQ, RSSI/LQ, SBUS, n.i.SBUS, Serial TX, MAVLink TX , CRSF TX, DSMX, SmartAudio | PWM Ch. 8 |

| Receiver pin | Output type Diversity RX (Nano) | Default value |
|--------------|--|---------------|
| 3 | PWM Ch1 to 12, RSSI, LQ, RSSI/LQ, SBUS, n.i.SBUS, Serial TX, MAVLink TX , CRSF TX, DSMX, SmartAudio | PWM Ch. 3 |
| 4 | PWM Ch1 bis 12, RSSI, LQ, RSSI/LQ, Serial RX, MAVLink RX , CRSF RX | PWM Ch. 4 |
| 7 | PWM Ch1 bis 12, RSSI, LQ, RSSI/LQ, Serial RX, MAVLink RX , CRSF RX | PWM Ch. 7 |
| 8 | PWM Ch1 to 12, RSSI, LQ, RSSI/LQ, SBUS, n.i.SBUS, Serial TX, MAVLink TX , CRSF TX, DSMX, SmartAudio | PWM Ch. 8 |

| Receiver pin | Output type Micro V2/ Nano rx | Default value |
|--------------|---|---------------|
| 1 | PWM Ch1 bis 12, PPM, RSSI, LQ, RSSI/LQ, SBUS, n.i.SBUS, CRSF TX, MAVLink TX , SmartAudio, DSMX | CRSF TX |
| 2 | PWM Ch1 bis 12, PPM, RSSI, LQ, RSSI/LQ, CRSF RX, MAVLink RX | CRSF RX |
| 3 | PWM Ch1 bis 12, PPM, RSSI, LQ, RSSI/LQ, CRSF RX, MAVLink RX | PWM Ch. 3 |
| 4 | PWM Ch1 bis 12, PPM, RSSI, LQ, RSSI/LQ, SBUS, n.i.SBUS, CRSF TX, MAVLink TX , SmartAudio, DSMX | Smart Audio |

