

Sky Drone FPV – Manual

Rev. 1

The Sky Drone FPV system consists of the Sky Drone FPV unit, which is typically connected to a flight controller on an UAV, and the groundstation software running on a tablet or PC.

WARNING: Do not connect a LiPo Battery directly to the Sky Drone FPV unit. See “Wiring” section in this user manual for setup details.

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4G / LTE Setup

The Sky Drone FPV units requires a data enabled SIM card to work.

- The SIM Card socket on supports the microSIM format.
A nano-SIM can be used with an adapter.
- Data Roaming is currently not supported.

The Groundstation side can be on any Internet connection. For best bandwidth performance and lowest latency we recommend an LTE connection using the same carrier as the Sky Drone FPV unit.

Important considerations for your data plan:

- Some carriers terminate the entire data connection after a certain data quota is used up. This plans should be avoided.
- Some carriers downgrade the connection speed after a certain data quota is used up. In most cases this is not a problem as our system adapts to the available bandwidth. But some carriers restrict the bandwidth to unusable levels which are only suitable for messaging but not video transfer.
- For average video quality and bandwidth availability we recommend to plan for 2GB data per hour of use.

APN Configuration

The default configuration of the Sky Drone FPV unit tries to connect to the 4G/LTE carrier with the APN “**internet**”. This is used by many carriers but might not work with your particular carrier.

To change the APN you have to remove the microSD card from the Sky Drone FPV unit and open it with your PC/Tablet. Open the file *SkyDronFPV.cfg* and change the line setting the APN to “**internet**” to the APN of your carrier.

Wiring

Power Connection

The Sky Drone FPV unit requires a 12V power supply.

It uses a standard connector with the following specs: 2.5mm ID, 5.5mm OD

If you are using Sky Drone FPV on an Unmanned Aircraft System, make sure to not wire it up directly to a LiPo battery but use a 12V Power supply (e.g. a 12V UBEC).



Example:

<http://www.digikey.com/product-detail/en/tensility-international-corp/CA-2184/CP-2184-ND/568575>

UBEC Example:

http://www.hobbyking.com/hobbyking/store/_18788_12V_4_5A_UBEC_2_5S_Lipoly_7_2_21V_.html

MAVLink Connection

To connect a MAVLink device like a Flight Controller Board to the Sky Drone FPV unit, you need to wire up the UART port of your device with a 3.5mm TRS connector that goes into the Sky Drone FPV Unit.

3.5mm 3-Conductor (TRS) Connector



| | |
|---------|-----|
| Tip: | RX |
| Ring: | TX |
| Sleeve: | GND |

Example: <http://www.mouser.com/ProductDetail/Switchcraft/35HR03684X/>

Antenna

The Sky Drone FPV unit includes an internal LTE antenna and an external antenna is not needed. It is however possible to connect an optional external LTE antenna to improve the reception in demanding conditions.

GCS Software

The Windows Groundstation Software (GCS) can be downloaded here:

http://www.skydrone.aero/downloads/skydronefpv_setup-latest.exe

Pairing

To make the GCS connect to your specific Sky Drone FPV unit, the setup process of the GCS will ask you for your pairing ID, which is printed on your unit.

Connection status

At the top left corner of the GCS you see a status in brackets “[XXXX]”.

| | |
|-------------|---|
| [NONE] | No connection to server. (check your internet connection) |
| [WAIT] | Connection established to server. Waiting for FPV unit to connect. |
| [PEER2PEER] | Connection established between server and FPV unit in peer-to-peer mode. |
| [RELAY] | Connection established between server and FPV unit in relay mode (peer-to-peer was unsuccessful). |
| [LOST] | Connection to FPV unit was established and then lost. |

The MAVLink HUD display remains static until you connect a MAVLink compatible flight controller to the system (→ see Wiring).