

Buddy Flight™ in the Pitlab FPV System

The FPV flights are become increasingly popular in the world and more and more peoples spend it's free time in this way. Very often the FPV pilots is flying together in one place. From experience is known that possiblity of determining position of another model in the air, using camera and goggles are very difficult, even at small distances. The group flight from one side creates risk of unexpected collision in the air, from the other side it is difficult or even impossible to keep another model visible in the goggles.

To meet the needs the Pitlab company proposed innovative solution under the name **Buddy Flight™**, allowing users of Pitlab OSD for the visual identification of the position up to 6 other models with the Pitlab FPV System. This innovative solution not only allows to increase flight safety, but also gives new opportunites to have fun (group flights for a particular target, flight in formation) and also allows the location of model crash or emergelency landing and tracking the model after lost of RC control.



NOTE: Group flights with location of the models on OSD radar screen require firmware version 2.20 or higher.



Position of individual models are indicated on the OSD symbolically with letters of the alphabet. Distance letters from the marker of the center screen indicates the distance to the model. Location of the letter determines position of the second model with respect to our model as is the case with presentation of waypoints. In addition interchangeable with letter symbol is presented relation of models altitude:

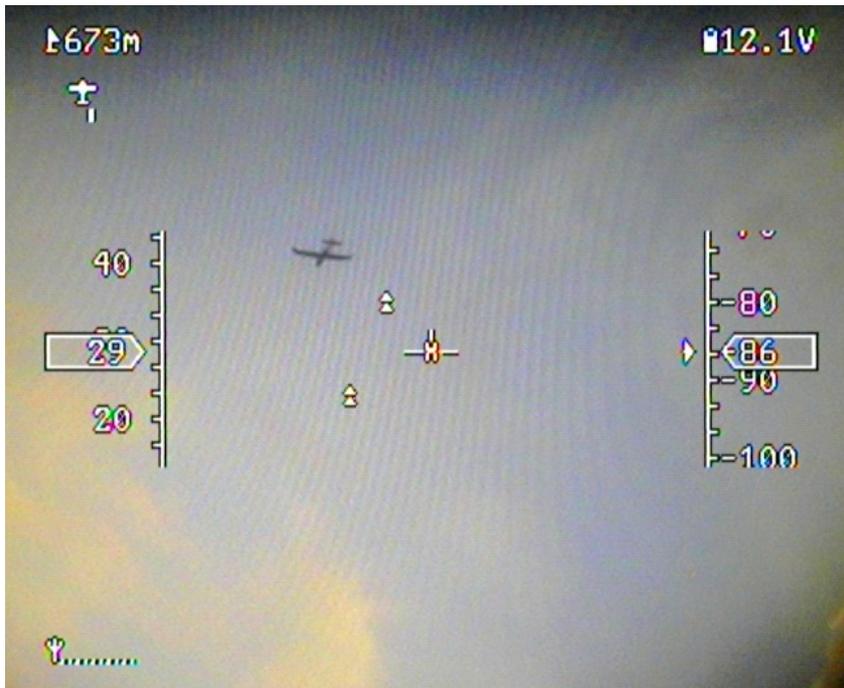
double triangle up - the model is more than 100m higher than ours,

single triangle up - the model is between 20 and 100m higher than ours,

underlined character at the top and bottom - the model is on the similar altitude (up to 20m above or below us)

single triangle down - the model is between 20 and 100m below than our,

double triangle down - the model is more than 100m below than our model,

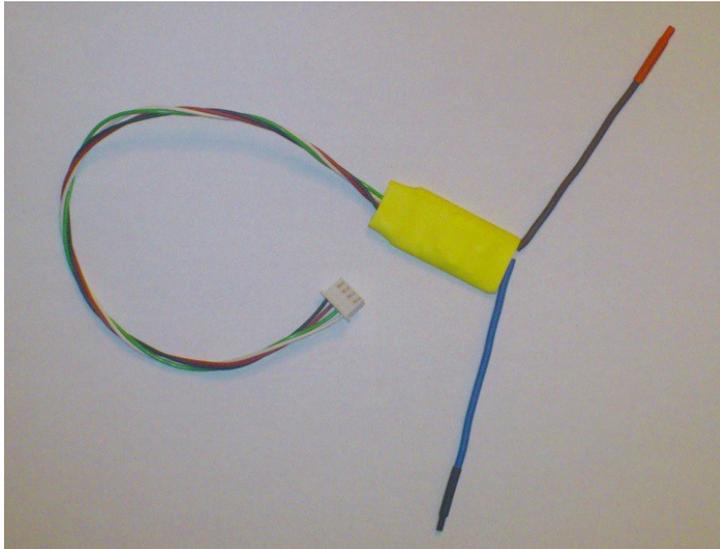


If the neighboring model's signal disappears, the screen is still representing last saved position of it, but alternating with the letter symbol is displayed an "X". This allow to us to continue to maintain the probable direction to the remote model to regain connectivity or locate the place where the model has broke down.

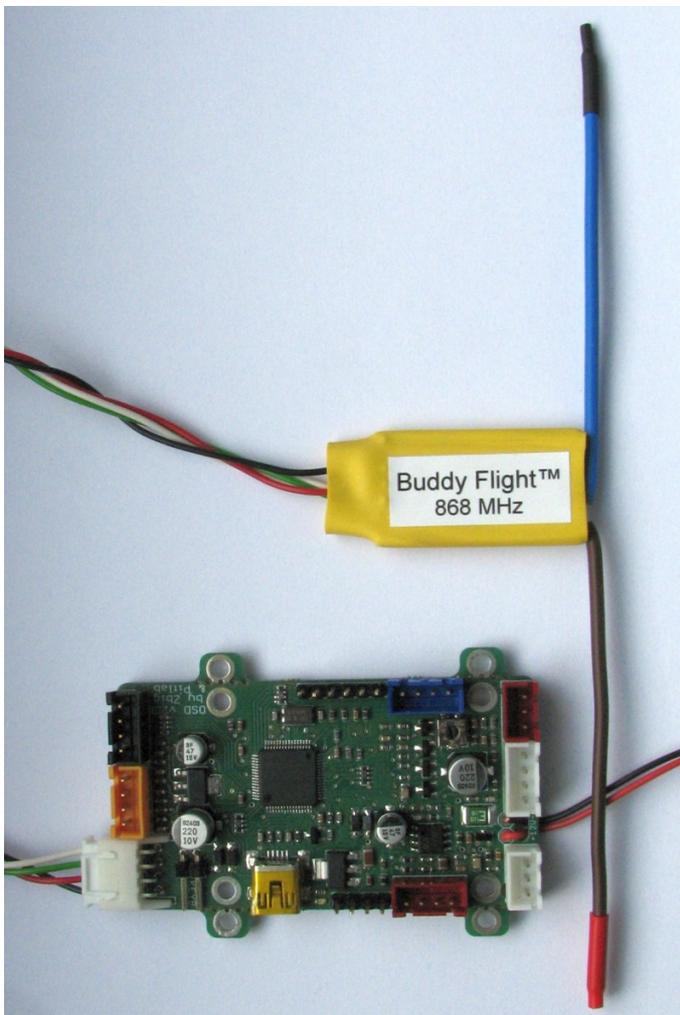


NOTE: The distance scale is logarithmic, like the scale of the waypoints, so you maintain good resolution for small distances and long range of maximum distances presented.

Communication between models provide long range modems. It exchange information about relative position in space. Modems are equipped with a ¼ dipole "V" antenna, providing coverage to several kilometers in the line of sight. To ensure optimal coverage, modem antanna should be adjusted in vertical polarization, whereby does not matter which side is facing up and whih down.

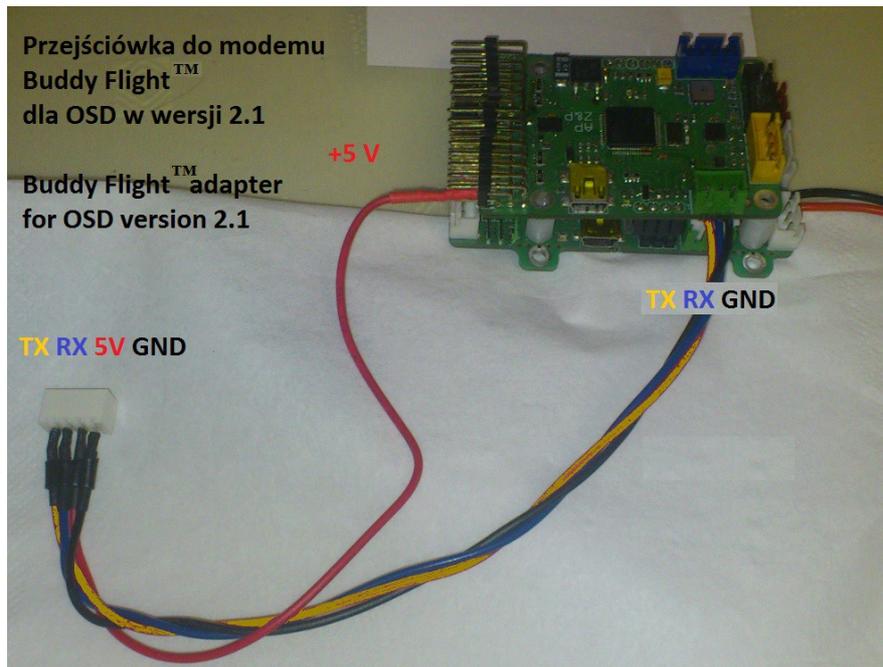


NOTE: Modems operate in the band 868 MHz, providing adequate frequency separation in relation to remote control, GNSS, and video transmission. On request can be prepared modems on the other bands: 433 MHz or 913 MHz in accordance with the legal regulations of your country.

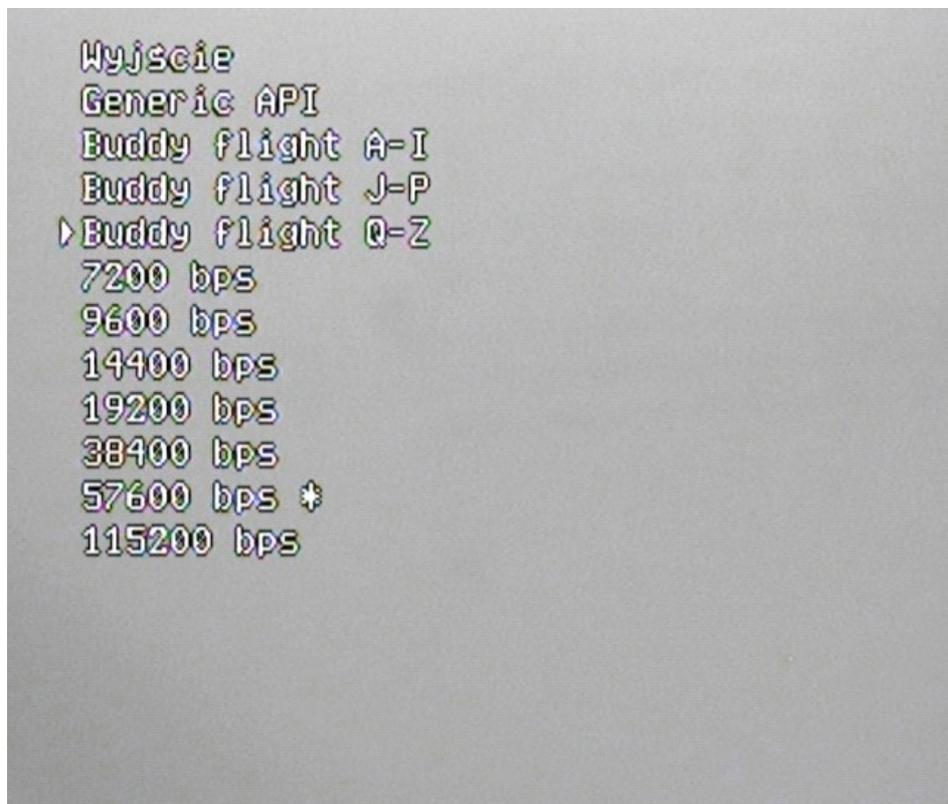


In OSD with hardware version 2.2 or later, modem is connected directly to the white, 4-pin OSD connector described as UART.

In case of version of OSD older or equal 2.1 (with green, 3-pin UART socket) it is necessary to prepare suitable adapter with additional 5V power line taken from receiver or serwo connector.



Once connected to the OSD, must be set appropriate mode from the OSD menu, selecting "Service" → "USART" → "Buddy flight" and one of the available letters identifying our model.



The transmission speed is set by default on 57600 bps.

From this point the system is ready to identify other models in the air. Viewing position of other models starts automatically when it starts to broadcast their position. It happens automatically after getting FIX and start GNSS navigation. The system does not require to manual connect or identify other models. The whole process of mutual identification is automatic.

In case when several models will be selected the same identifier letter, their position will not be overwritten each other, but on the screen just appears some of the same identifiers in a different places of the radar screen. This provides a definition of the position of all models, also in a situation where before the start were not selected different model identifiers.

Thank you for choosing our system and enjoy your buddy flights

The Pitlab team