FY-21AP Data Radio and Remote Adapter Board Interface Instruction

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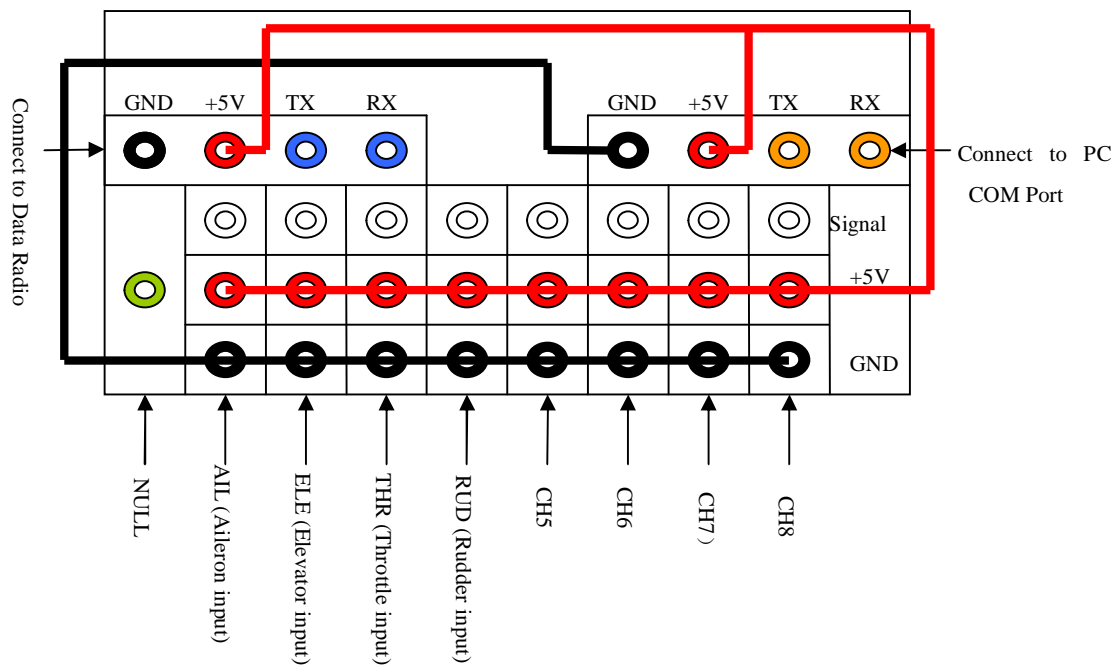　　　　Park ,ChaoYang Road ,Qi Xing District ,GuiLin China
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Hardware Connecting Instruction

FY21AP Provide a data radio interface, you can downlink telemetry data through the data radio, and monitor the real-time fly by the computer. The telemetric data includes longitude, latitude, height, speed, course, positioning, operating mode, the real-time output amount of the servo and so on. In addition, through match with FY-3ZT remote control adapter, it can send the remote receiver signal to FY-21AP through radio link to achieve remote control .it can real-time display flight trace and flight parameters in matched ground station software, conducting pointing flight, change flight attitude in real-time, circling radius and so on .
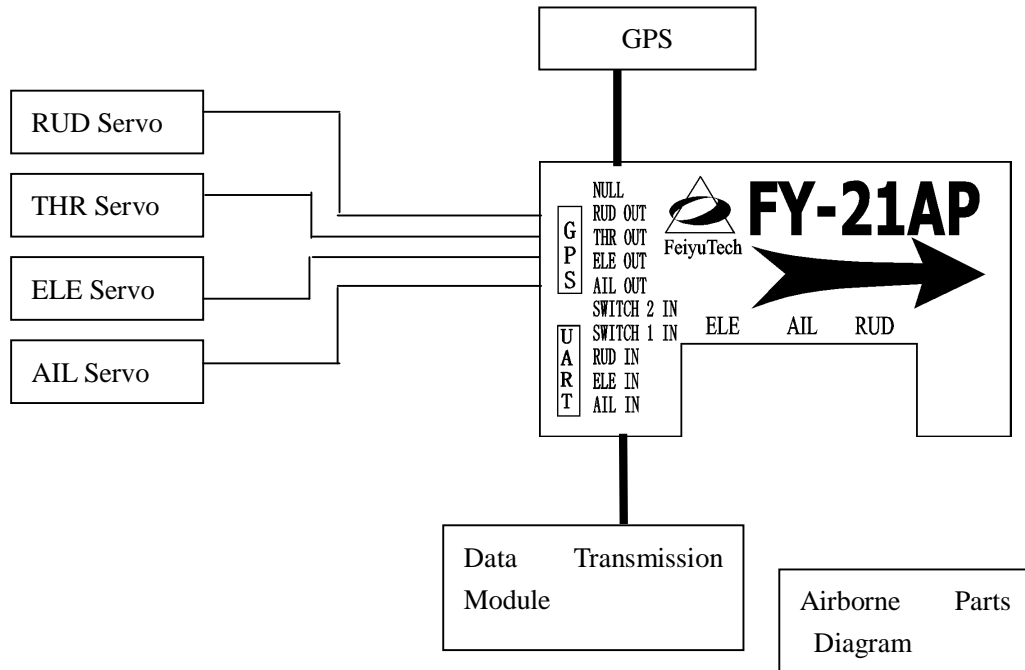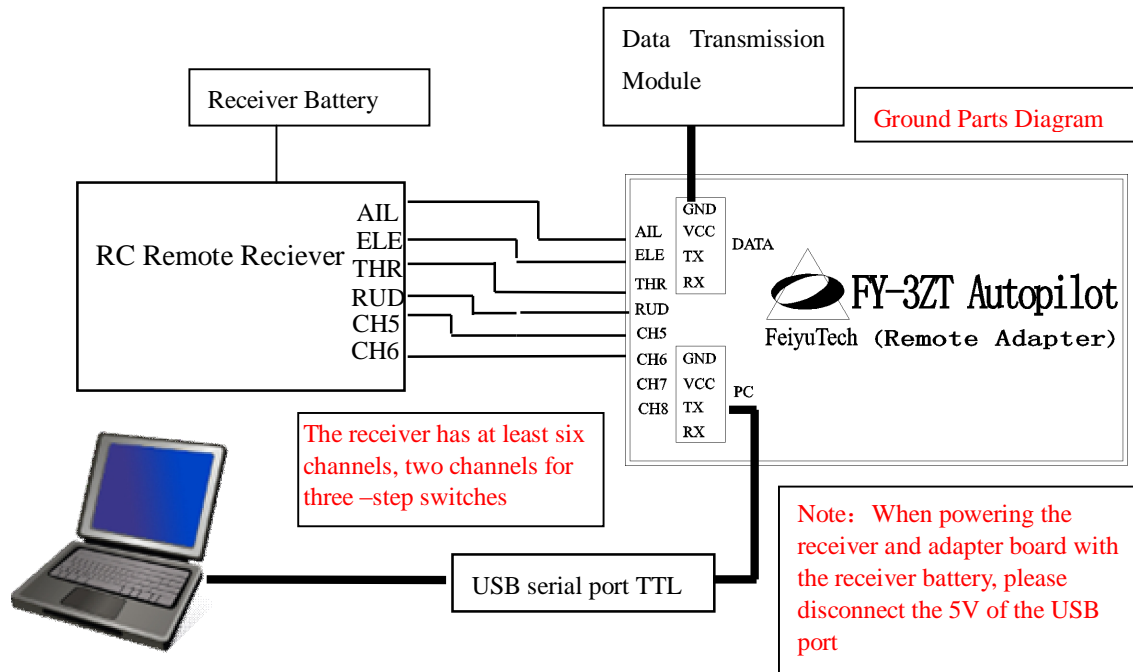
FY-3ZT Remote Adapter Board Interface

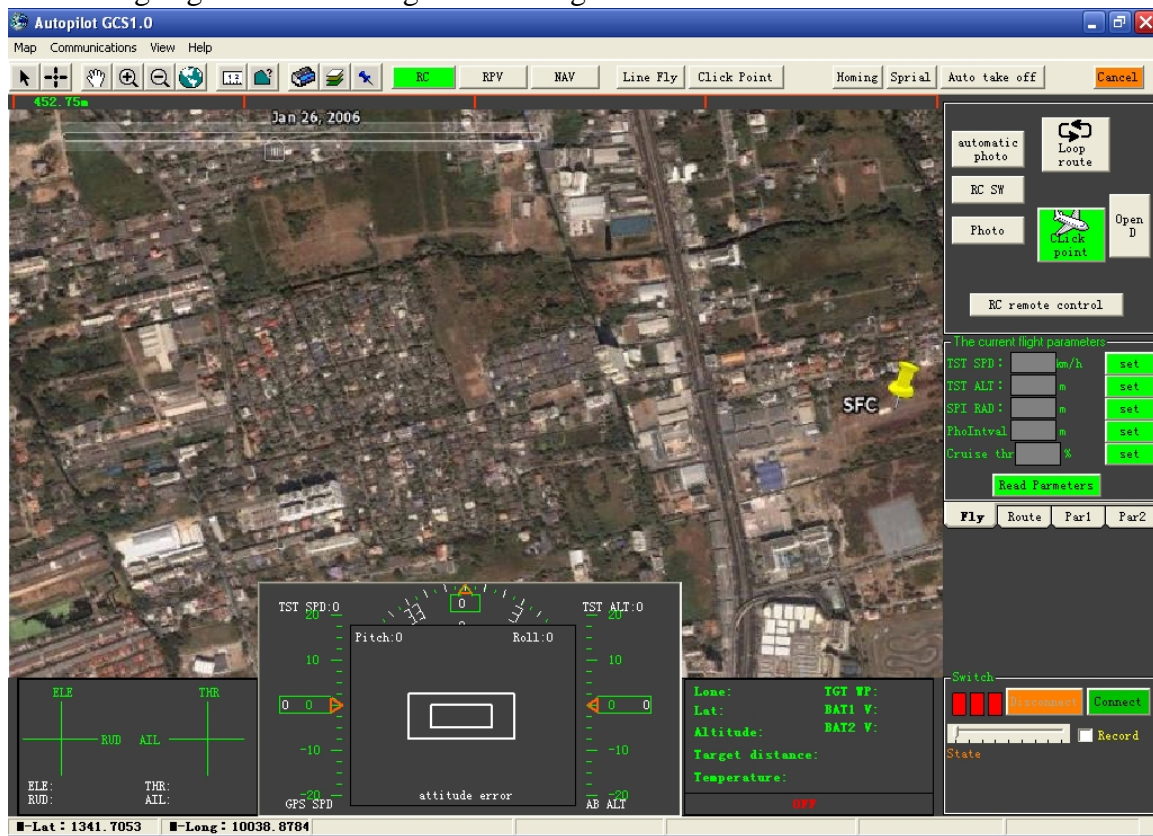Remote Adapter Board   FY-606 Data Radio

The main function of FY-3ZT remote adapter board is send the digitalize output signal of the remote receiver to FY-21AP through data radio, at the same time send the control instructions of the ground station software to FY-21AP through data radio and send the flight trace and flight parameters which send back by FY-21AP to ground station software .FY-3ZT remote adapter board include the port with receiver ,the port with data radio and the port with PC ,the typical connecting diagram is as bellowing :

```
                              ┌──────────────┐
                              │     GPS      │
                              └──────┬───────┘
                                     │
┌──────────────┐          ┌──────────┴────────────────────────┐
│  RUD Servo   │──────┐   │ ┌─┐ NULL                           │
└──────────────┘      │   │ │G│ RUD OUT    △     FY-21AP        │
┌──────────────┐      │   │ │P│ THR OUT  FeiyuTech             │
│  THR Servo   │────┐ │   │ │S│ ELE OUT                        │
└──────────────┘    │ │   │ └─┘ AIL OUT                        │
┌──────────────┐    │ │   │     SWITCH 2 IN                    │
│  ELE Servo   │──┐ │ │   │ ┌─┐ SWITCH 1 IN  ELE   AIL   RUD   │
└──────────────┘  │ │ │   │ │U│ RUD IN                         │
┌──────────────┐  │ │ │   │ │A│ ELE IN                         │
│  AIL Servo   │─┐│ │ │   │ │R│ AIL IN                         │
└──────────────┘ ││ │ │   │ └T┘                                │
                 │└─┴─┴───┤                                    │
                 └────────┤                                    │
                          └──────────────┬─────────────────────┘
                                         │
                              ┌──────────┴──────┐   ┌─────────────────┐
                              │ Data   Transmission │ │ Airborne  Parts │
                              │ Module          │   │ Diagram         │
                              └─────────────────┘   └─────────────────┘
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Ground Parts Diagram

Receiver Battery

Data Transmission Module

RC Remote Reciever

AIL
ELE
THR
RUD
CH5
CH6

FY-3ZT Autopilot
FeiyuTech (Remote Adapter)

The receiver has at least six channels, two channels for three –step switches

USB serial port TTL

Note：When powering the receiver and adapter board with the receiver battery, please disconnect the 5V of the USB port

Software Connecting Instruction

Once the hardware connected, it can display the flight trace, control parameter and conducting flight control through FY-21AP ground station software .

Basic Operating Procedures

1.Through menu bar "Map"—"Open map", and chose a Mapinfo MapX Geoset atlas file which is suffix name is (.gst) from computer ,and then click "Open" , loaded it to main map interface .

2.Through menu bar "communication"—"port", chose the port which is connect with data radio (for example :COM1).Through menu bar "communication "—"Baud rate ",chose 19200 .

3. Click the green "connect"button of the "main switch" which is on the lower right corner of software interface,the file dialog box of "Save Course Log "will be popped .You must input the position and file name where you want to save the course to .(Suggested to use the current date and take off sortie to name the course file ,for example :20070501-1.txt),and then click "Save", the ground station software will start to communicate with FY-21AP and record the telemetry data to course log file .

Once connects successfully, the ground station software will display the flight course, flight attitude and parameters information etc. .

The instruction of use the data radio remote –controlled aircraft .

FY-21AP can connect with receiver directly by default, at this time, the control way is "RC receiver remote control" mode. Through data radio and remote adapter to control the plane, you must switch the control way to "data radio remote control" on the ground station software.
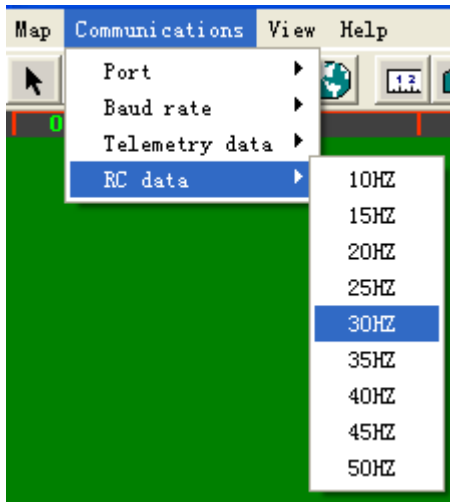

Click the above button can switch between "RC receiver control remote" mode and "data radio remote control" mode. When switch to" data radio remote control "mode, the remote control joystick should control the related rudder action of plane.

In "data radio remote control" mode,FY-21AP has auto return function .If the data communication disconnect over 10 seconds between FY-21AP and ground station ,FY-21AP will automatically approach to return mode ,fly back to the take off point .

Change the uploaded remote control data frequency of the remote control adapter board

The remote control adapter board will send the output signal of the remote receiver to FY-21AP through data radio the default transmitting frequency is 10Hz ,at this time ,the control remote will with a slight delay to control the flight rudder .If what you use is high performance full-duplex data radio , you can increase the remote control data refresh rate of the remote control adapter aboard ,the highest is 50Hz .

Through "communication"—"remote control data "can choose the needed remote data refresh rate directly ,over quick refresh rate will give more burden to the data communication ,please choose the proper refresh rate (Suggested 30Hz) .

Change the download frequency of FY-21AP remote data

FY-21AP can download the remote data through data radio ,includes attitude , longitude , latitude, altitude , speed ,course ,positioning and working mode .The default download data frequency is 10Hz, over quick refresh rate also will bring burden to data communication ,please choose the proper refresh rate (Suggested 2Hz).