# 2.4G DATALINK

# USER MANUAL

**SIYI Technology (Shenzhen) Co., Ltd.**

**siyi.biz/en**

Thank you for purchasing SIYI Technology's product.

SIYI 2.4G Datalink is designed to be a professional transmitting and receiving station for drones on industrial application, such as aerial mapping. It is applied with a brand new RF modulation technology which supports an anti-interference long communication distance at very low transmitting power. To maintain a safe and orderly public space and to ensure you a good using experience of AK28 transmitter, please read this manual carefully. If you have any issue using the product, please consult the manual or check online pages of AK28 on SIYI Technology's official website (http://www.siyi.biz). You can also inquire our after-sale service coordinator (support@siyi.biz).

Contact Us: **SIYI Official Website** *(https://siyi.biz/en)*

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|---|---|
| SIYI User Group - Facebook |  |
| Facebook |  |
| Linkedln |  |
| YouTube |  |

## Manual Version Update Record

| Version | Date | Updates |
|---|---|---|
| **1.1** | 2025.4 | —— |
| **1.2** | 2025.10 | Delete content related to the CAN interface function |

# CONTENT

# 1 READ TIPS

## 1.1 Icon Definition

Please pay more attention to content indicated with the following marks:

⚠**DANGER** Dangerous manipulation probably leads to human injuries.

⚠**WARNING** Warnings on manipulation possibly leads to human injuries.

⚠**CAUTION** Cautions on what manipulation may lead to property loss.

🚫 **Prohibited**　　❗ **Mandatory**　　⬤ **Mark**

## 1.2 Flight Safety

2.4G Datalink is designed for professional application in specific industries, users who approaches to the device should have at least the basic ability to manipulate it. Any irregular or irresponsible manipulations of the device may cause damages or lead to property loss or human injuries. Non-adult users must follow their trainer's guidance or the supervision of an adult. Disassembling or modification on the 2.4G Datalink system is prohibited without permission from its manufacturer, SIYI Technology.

To maintain a safe and orderly public space and to ensure you a good using experience of SIYI's products, please read the prohibited and mandatory terms carefully.

🚫 Do not use 2.4G Datalink system to control your aircraft/vehicle at places with intensive crowd (a square, a park), or at places with many obstructions (a street, a parking lot), or in fields with strong magnetic or interference (an electricity plant, a radar station, railways), or in any other fields where an irregular flight/operation may cause property loss or human injuries.

🚫 Do not hold or cover the ground station antenna or obstruct its transmission by any means in a flight or an operation.

🚫 Never point your ground station antenna's upper ends straightly to your aircraft/vehicle while it is working, they are the weakest part for transmission.

🚫 Do not start your aircraft/vehicle when you are tired, drunk, in sickness or any circumstances you are not feeling good.

🚫 Do not take off your aircraft when it is rainy, windy or at night.

🚫 Do not power off your transmitter while your aircraft's/vehicle's engines and motors are still working.

❗ Please always try to control your aircraft/vehicle within sight range.

❗ Make sure that your monitor display the FC control center and you can read their status before starting your aircraft/vehicle.

❗ Do not forget to check battery level of the transmitter and the receiver before starting your aircraft/vehicle.

⚠ Always power off your aircraft/vehicle first, ground station the second.

⚠ Before changing any settings for the ground station, make sure your aircraft's/vehicle's engines are powered off and their motor wires are off connection, in case of a sudden switch on.

⚠ When you start your aircraft/vehicle for the first time, make sure that the fail-safe settings in your transmitter is activated.

⚠ Always switch on the transmitter first and hold the throttle joystick at its bottom position, then power on your aircraft/vehicle.

# 1.3 Precautions on Storage/Carrying/Recycling

## ⚠CAUTION

Always place your 2.4G Datalink system at places where babies or kids do not reach.

## ⚠DANGER

2.4G Datalink system should be placed as below:

Not too hot (above 60℃) or too cold (under -20℃);

Not under direct sunshine or too dusty or too wet;

Not on an unstable holder which lacks of solid supports or may cause vibration;

Not nearby steam or other heat sources.

# 2 PRODUCT INTRODUCTION

## 2.1 Product Features

### Long Transmission Distance

The low-power RF solution which includes the advanced frequency hopping algorithm and the remarkable anti-interference technology makes the communication distance up to 15 kilometers.

### Various Ports

The 2.4G Datalink supports UART input and is equipped with a USB port by which users can upgrade the device through PC easily.

## 2.2 Parts

### 2.2.1 At a Glance
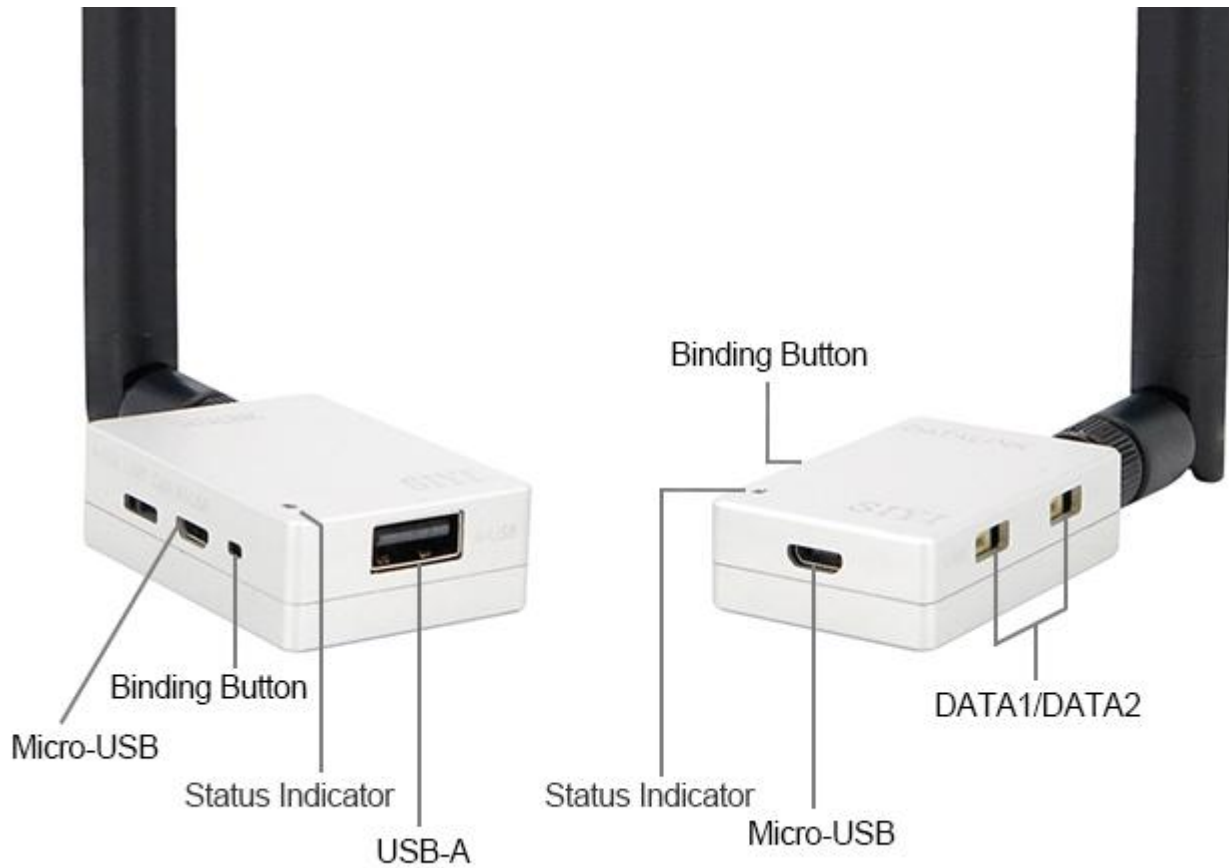


### 2.2.2 Ports on 2.4G Datalink System

**Ground Unit**

Micro-USB: Firmware upgrading.

Binding Button: Press and hold for two seconds to bind the ground unit with the air unit.

Status Indicator: RF connection status.

USB-A: Telemetry data output to smartphone/tablet/PC.

DATA1/DATA2: Reserved

**Air Unit**

Binding Button: Press and hold for 2 seconds to bind the air unit with the ground unit.

Status Indicator: RF connection status.

Micro-USB: Firmware upgrading.

DATA1/DATA2(+ - Tx Rx): Flight controller data input.

# 2.3 Technical Specification

## Overall

| | |
|---|---|
| **Compatible FC** | Open Source Flight Controllers: PIX/APM, etc.<br>BOYING PALADIN V2<br>TOPXGUN T1-A<br>WOOZOOM THEONE-A<br>EFY FINIX200M<br>JIYI K3A/K++<br>CFUAS C1-A |
| **Frequency Band** | 2400 MHz – 2483 MHz |
| **Transmitting Power** | 100 mW (20 dBm) E.I.R.P |
| **Transmitting Speed** | 325kbps*default |
| **Receiving Sensibility** | -101 dBm |
| **Transmitting Distance** | 15 km / 9.3 miles (unobstructed, free of interference) |
| **UART Baud Rate** | 115200*default |
| **Working Current** | Ground Unit: 200 mA<br>Air Unit: 80 mA<br>Idle: 60 mA |
| **Power Input Port** | Micro-USB |
| **Wireless Type & Function** | 2.4G ISM |
| **Packing Size** | 8.5x7.5x5 cm |
| **Packing Weight** | 150 g |

## Ground Unit

| | |
|---|---|
| **Power Input Port** | Micro-USB; 5V/2A |
| **Data Output Port** | USB-A |
| **Antenna Gain** | 5 dBi |
| **Antenna Connector** | SMA 180° Female Base |
| **Working Voltage** | 5V |
| **Operating Temperature** | -10 to 55℃ |
| **Dimensions** | 50 x 35 x 16 mm |
| **Net Weight** | 35 g |

## Air Unit

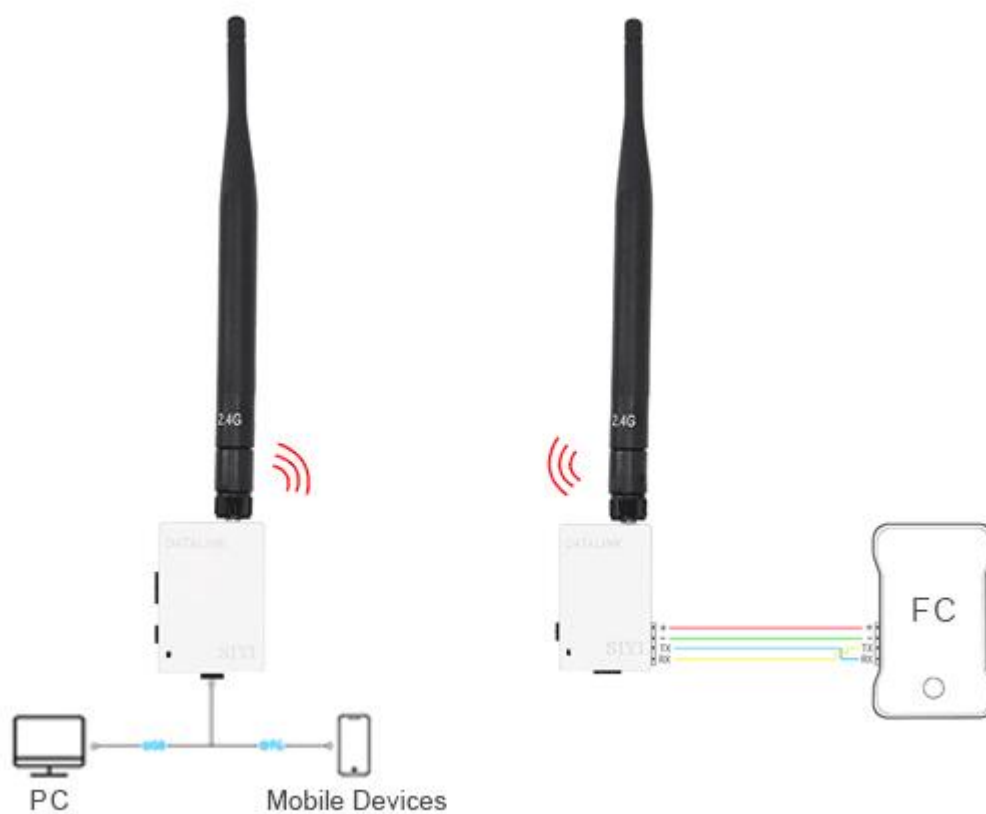| | |
|---|---|
| **Datalink Ports (to FC)** | UART |
| **Antenna Gain** | 5 dBi |
| **Antenna Connector** | SMA 180° Female Base |
| **Working Voltage** | 5V |
| **Telemetry Voltage** | 15 – 50V |
| **Operating Temperature** | -10 to 55℃ |
| **Dimensions** | 49 x 31 x 13.5 mm |
| **Net Weight** | 28g |

# 2.4 Packing List

1 x Ground Unit

1 x Air Unit

1 x OTG Micro-USB Cable

1 x OTG Type-C Cable

1 x Telemetry Cable

# 2.5 AK28 Common Diagram



# 2.6 LED Indicator Definitions

The LED indicator on the ground unit and the air unit has three colors. The blinking

frequencies indicates 2.4G Datalink system's different working status.

🟢 Solid Green: Good communication.

🟢 Green Blinks: Blinking frequency indicates AK28 transmitter's RF signal strength. The

faster it blinks, the worse the signal is.

🔴 Solid Red: Lost of communication.

🔴 Slow Red Blinks: Ground unit firmware does not match.

🔴 Fast Red Blinks: Transmitter is linking/binding with receiver.

🔴 🟢 🟡 Fast Red-Green-Yellow Blinks: Firmware upgrading mode.

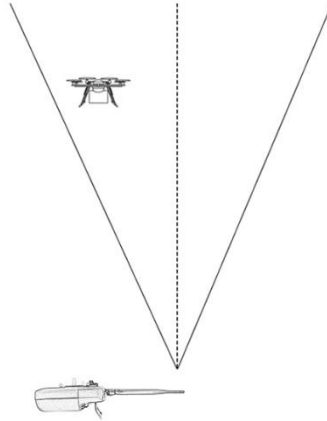# 3 GET READY TO USE 2.4G DATALINK

## 3.1 How to Place Antennas Right



⭕ Mark: 2.4G Datalink has the best signal strength when the antennas are placed horizontally. Thus, please avoid pointing antennas' upper end straightly to your aircraft and do not fold the antennas.

## 3.1.1 Good Antenna Angle of Transmitter

**Aircraft in front of the transmitter**
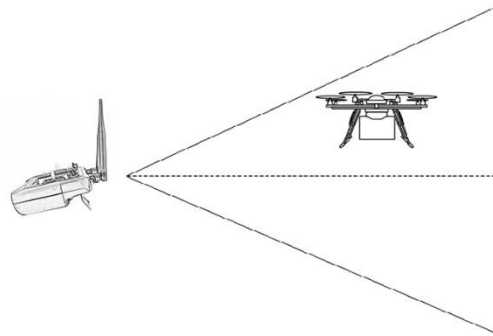
**Aircraft up from the transmitter**

## 3.1.2 Good Antenna Angle of Sky Station



**Flying high**

(Altitude higher than 10 meters, antennas should be placed downwards)



**Flying low**

(Altitude lower than 10 meters, antennas should be placed upwards)

⚠️**WARNING**

Do not fold or cover antennas and avoid any obstruction between the transmitter and the aircraft in flight, otherwise there will be an obvious decrease to transmission signal quality.
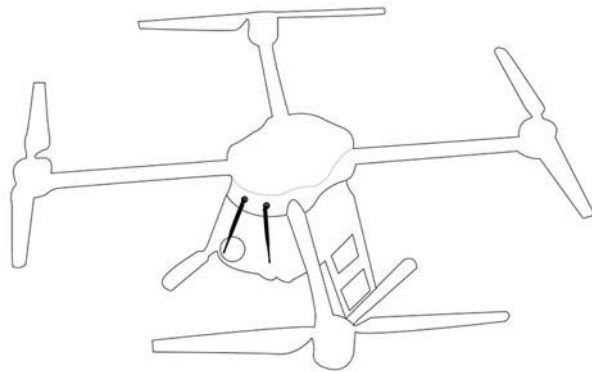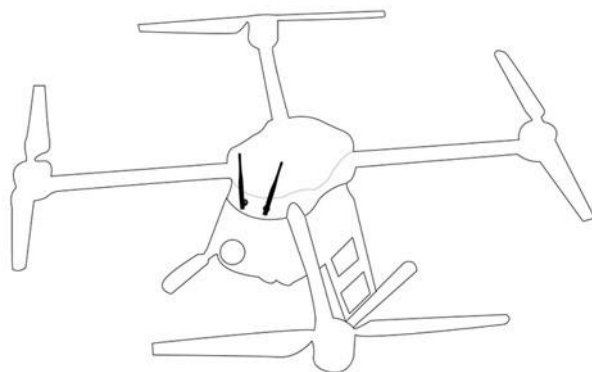
## 3.2 How to Link/Bind 2.4G Datalink Ground Unit to Air Unit

Each unit of 2.4G Datalink is assigned with a unique ID code. Before linking the ground unit to the air unit, the receiver identifies the transmitter ID (*Linking/Binding*) first. After the first linking process between the transmitter and the receiver is done, the transmitter ID will be memorized in the receiver so that you don't have to repeat the process before the next flight/operation (except when your transmitter has to be linked with a different receiver).

**Linking/Binding Steps**

1. Please keep the ground unit one meter away from the air unit and power on them;

2. On the ground unit, stick a pin or needle to the linking button inside the linking hole, press and hold the button for 3 seconds till the status indicator blinks red which means the transmitter is ready for linking

3. Turn to the air unit, stick a pin or needle to the linking button inside the linking hole, press and hold the button for 3 seconds till the status indicator blinks red which means the receiver is ready for linking;

4. If the transmitter indicator and the receiver both blink green, linking is finished.

# ⚠️WARNING

Before linking the transmitter to the receiver, please make sure your aircraft motors have no power connected (E.S.C are off connection).

Reboot the receiver when linking steps are finished, and try to manipulate on the transmitter to confirm if it works well.

# 4 Firmware and Baud Rate

## 4.1 Firmware Upgrading

2.4G Datalink system supports firmware upgrading through PC.

Before upgrading 2.4G Datalink system, it is necessary to download the software "SIYI Assistant v1.2.0" and connect the ground unit and the air unit to your PC in turns using the original OTG USB cable.

**Steps**

1.  Please visit the 2.4G Datalink system download page on SIYI Tech's official website to download all necessary software, application, and firmware one by one.

    Link: http://www.siyi.biz/cn/datalink/DATALINK/xiazai/

2.  Release the ".zip" files and install "SIYI Assistant v1.2.0" on your PC.

3.  Then use the original OTG USB cable with the upgrading tool to connect the ground to your computer.

4.  Run "SIYI Assistant v1.2.0" to check ground unit's current firmware version. If they are not the latest versions, then tap on "Upgrade" to enter firmware upgrading menu.

5.  Load the latest firmware files and tap on "Upgrade" and wait till the process is finished.

6. Repeat step 3 to 5 for upgrading the air unit.

## 4.2 Baud Rate Switching

2.4G Datalink system also supports different firmware version to match different baud rate.

Please use the firmware with the baud rate according to your requirement.

# 5 TELEMETRY OUTPUT (TO GCS)

The ground unit of 2.4G Datalink system can connect to the ground control software running on different devices.

## 5.1 Connect to Smartphones/Tablets

By connecting to smartphones and tablets, 2.4G Datalink system can work with Android ground control software such as QGroundControl.

**Steps**

1. Check baud rate settings of the flight controller in the ground control software.

2. Upgrade the correct firmware to the ground unit and the air unit according to the given baud rate.

3. Connect the air unit with the flight controller following the right cable sequence.

4. Use the OTG cable to connect the ground unit with your smartphone/tablet.

5. Open your GCS, tap on "USB Connection – Connection Succeed". (Please approve if it reminds you acquire USB permission.)

## 5.2 Connect to PC

By connecting to smartphones and tablets, 2.4G Datalink system can work with Android ground control software such as Mission Planner.

**Steps**

1. Check baud rate settings of the flight controller in the ground control software.

2. Upgrade the correct firmware to the ground unit and the air unit according to the given baud rate.

3. Connect the air unit with the flight controller following the right cable sequence.

4. Use the OTG cable to connect the ground unit with your PC.

5. Open your GCS and select the correct serial port device. (Please check if drivers are installed if your PC does not recognize the serial port device.)

# 6 AFTER-SALE SERVICE

Please visit the SIYI Technology support page at [Service and Support - SIYI Technology | Empowering and Building an Intelligent Robot Ecology](#) for the latest after-sales and warranty information.