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TAISYNC PD21A-010P-01 Video and Data Transmission Device User Guide

Contents

TAISYNC

TAISYNC PD21A-010P-01 Video and Data Transmission Device

Product Information

- **Specifications:**
  - **Air Unit Ports:** RF port for antenna, 100Mbps Ethernet port, serial port for telemetry, S.Bus port, power input (DC12V ~ 26V), Type-C USB port.
  - **Ground Unit Ports:** RF port for antenna, Ethernet video output to PC, serial port for telemetry, S.Bus port, power input (DC12V ~ 26V), PPM port, Type-C USB port.

Product Usage Instructions

- **Setting up Air Unit:**
  - Connect the antennas to the RF ports of the air unit.
  - Connect the camera to the Ethernet port of the air unit.
  - Connect the PPM/S. Bus port of the flight controller to the RC port of the air unit.
  - Connect the flight controller telemetry port to the serial port of the air unit.
  - Connect a 12V DC power to the power port of the air unit and turn on the power.
- **Setting up Ground Unit:**
  - Connect the antennas to the RF ports of the ground unit.
  - Connect the remote controller's PPM/S.Bus output to the RC port of the ground unit.
  - Connect the USB port of GCS/PC to the serial port of the ground unit with a Serial-USB cable.
  - Connect the Ethernet output port of the ground unit to the GCS/PC.
  - Connect a 12V DC power to the power port of the ground unit.

- **Web-page Management:**
  - ViulinxPro Dual-band has a web-page management interface. To access it:
  - Directly connect your PC to the air unit/ground unit using an Ethernet cable.
  - Set your PC IP address as 192.168.199.33/24.
  - Visit 192.168.199.18 (for the air unit) or 192.168.199.16 (for the ground unit) through a web browser.
- **FAQ:**
  - **Q: How do I bind the air unit and ground unit?**
  - **A:** Press and hold the bind button on either the air unit or ground unit until LED1 and LED2 start flashing. The units are already bound before factory delivery.
  - **Q: What is the purpose of the Type-C USB port?**
  - **A:** The Type-C USB port can be used for various purposes, such as firmware updates or connecting to compatible devices.
  - **Q: How do I access the web page management interface?**
  - **A:** Connect your PC to the air unit or ground unit using an Ethernet cable, set your PC IP address as 192.168.199.33/24, and visit the corresponding IP address (192.168.199.18 for the air unit or 192.168.199.16 for the ground unit) through a web browser.
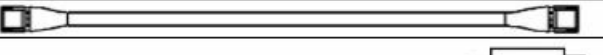
Package Contents

Air unit & Ground Unit
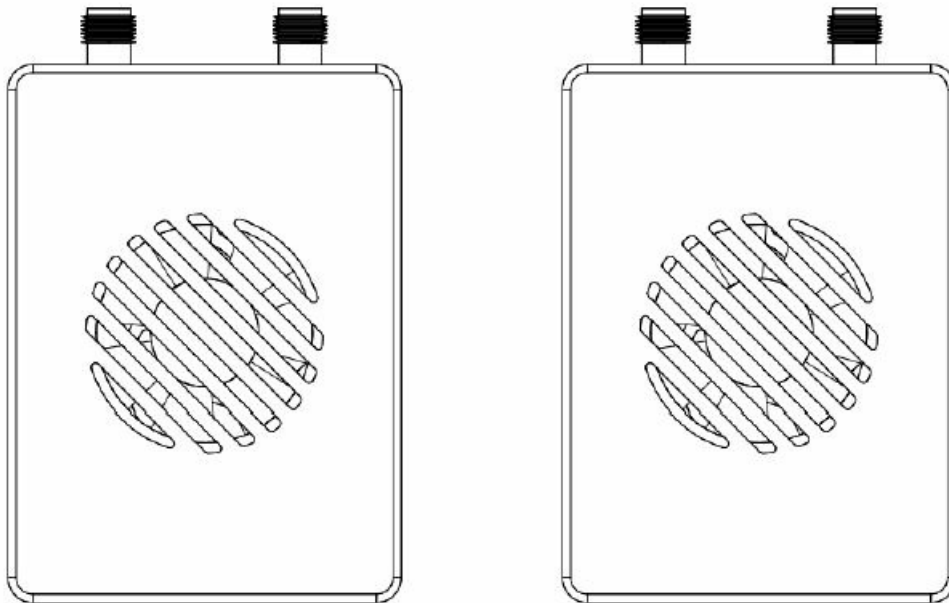
Accessories

Air antenna x 2	
Ground antenna x 2	
Power cable x2	
Serial cable (Air Unit) x 2	
Serial cable (Ground Unit) x 2	
RC cable (Air Unit) x 2	
RC cable (Ground Unit) x 2	
RJ45 cable x 2	

Introduction

Air Unit Ports
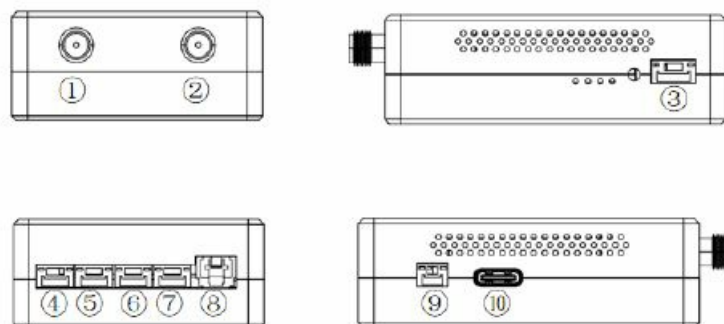
1. RF port for antenna
2. RF port for antenna
3. E thernet video input from a camera, web page management interface. Pinouts of the Ethernet port is R R+ T T+ seen from left to right in above figure.
4. Serial port for telemetry, ttl (voltage level or RS232. Pinouts of the serial port is Tx Rx GND seen from left to right in above figure.
5. Serial port for telemetry, ttl (voltage level or RS232. Pinouts of the serial port is Tx Rx GND seen from left to right in above figure.
6. S.Bus port connected to a flight controller. Pinouts of the S.Bus port is 5V GND S.BUS seen from left to right in above figure.
7. S.Bus port connected to a flight controller. Pinouts of the S.Bus port is 5V GND S.Bus seen from left to right in above figure.
8. Power input (DC12V ~ 26V) Pinouts of the power port is GND PWR seen from left to right in above figure.
9. PPM port connected to a flight controller Pinouts of the PPM port is GND PPM seen from left to right in above figure.
10. Type C USB port.

Air Unit LEDs & Button

1. **It's off when** radio link connected
2. **It's off when** radio link connected
3. **Solid o n in orange 100Mbps** Ethernet physical link connected
4. **Flickering in green:** when there s data transmission.
5. **Bind button:** press and hold till LED1&LED2 are flashing, it's bound already before factory delivery.

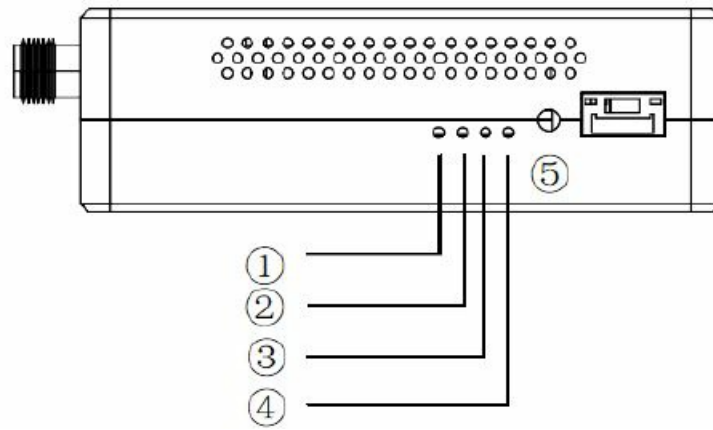**Ground Unit Ports**
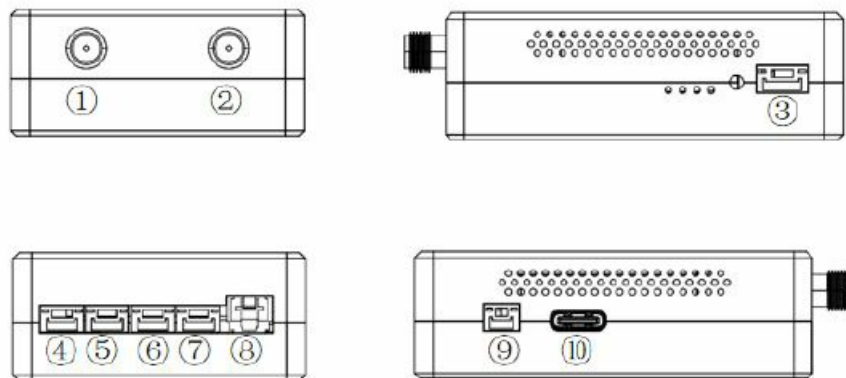

1. RF port for antenna
2. RF port for antenna
3. Ethernet video output to PC, web page management interface. Pinouts of the Ethernet port are R R+ T T+ seen from left to right in the above figure.
4. Serial port for telemetry, TTL (voltage level 3.3V), or RS232. Pinouts of the serial port is Tx Rx GND seen from left to right in the above figure.
5. Serial port for telemetry, TTL (voltage level 3.3V), or RS232. Pinouts of the serial port is Tx Rx GND seen from left to right in the above figure.
6. S.Bus port connected to a S.Bus receiver. Pinouts of the S.Bus port are 5V GND S.Bus seen from left to right in the above figure.
7. S.Bus port connected to a S.Bus receiver. Pinouts of the S.Bus port are 5V GND S.Bus seen from left to right in the above figure.
8. Power input (DC12V ~ 26V) Pinouts of the power port are GND PWR seen from left to right in the above figure.
9. PPM port connected to a remote controller Pinouts of the PPM port are GND PPM seen from left to right in the above figure.
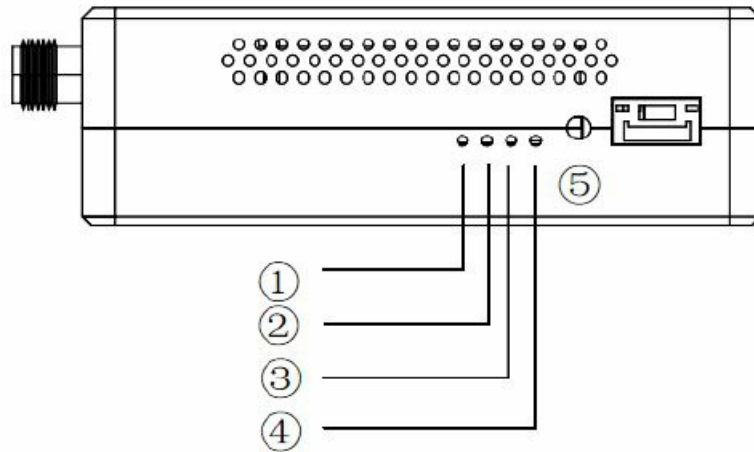10. Type C USB port.

Ground Unit LEDs & Button

1. **Solid on in green:** Air to Ground link connected
2. **Solid on in orange:** Ground to Air link connected
3. **Solid on in orange** 100Mbps Ethernet physical link connected.
4. **Flickering in green:** when there's data transmission
5. **Bind button:** press and hold till LED1&LED2 are flashing, it's bound already before factory delivery.

Setting up Air Unit
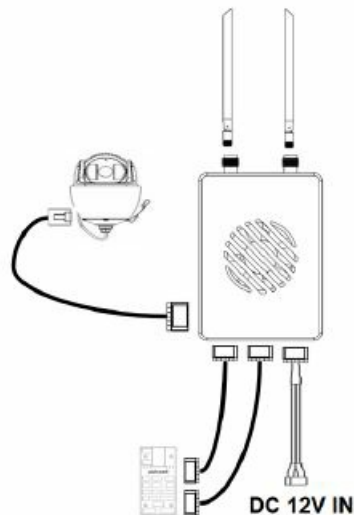
1. Connect antennas to RF ports of the air unit.
2. Connect the camera to the Ethernet port of the air unit.
3. Connect the PPM/S. bus port of the flight controller to the RC port of the air unit.
4. Connect the flight controller telemetry port to the serial port of the air unit.
5. Connect a 12V DC power to the power port of the air unit and turn on the power.

Setting up Ground Unit

DC 12V IN
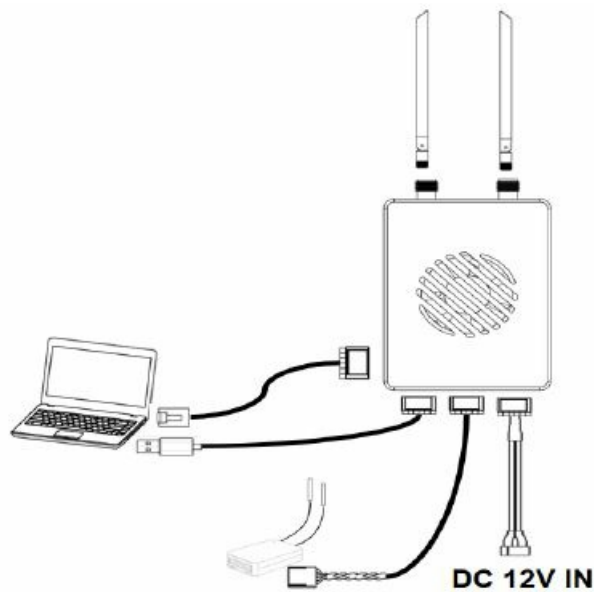
1. Connect antennas to RF ports of the ground unit.
2. Connect the remote controller's PPM S.bus output to the RC port of the ground unit.
3. Connect the USB port of GCS/PC to the serial port of the ground unit with Serial USB cable
4. Connect the Ethernet output port of the ground unit to the GCS/PC.
5. Connect a 12V DC power to the power port of the ground unit.

Web page Management

- ViulinxPro Dual band has web page management interface. Directly connect PC to air unit/ground unit by Ethernet cable, set PC IP address as 192.168.199.33/24, and visit 192.168.199.18 (air unit)/192.168.199.16 (ground unit) through web page.

Manage Air Unit Status

- Baseband status, there's detailed real time information like RSSI, SNR, Tx Power, LDPC stats, telemetry stats, etc.

192.168.199.18/index.html

Product Model: Taisync

Software Version: 1.1

Taisync

| Status | Config | Upload |

BaseBand Status

Device Information

BaseBand Status	
A-LdpcPass	0
A-LdpcFail	0
A-Snr	0
A-RSSI0	-103
A-RSSI1	-104
A-RxVga0	69
A-RxVga1	69
A-TxPower	24
A-LinkStatus	init
A-LinkQuality	0%
A-FPGATemp	0
A-AD9361Temp	64
A-CurrentAnt	auto-rf1
A-TxOverflowCnt	0
A-TxTotleCnt	418
A-TxCnt	418
A-RxSubmitCnt	0
A-RxDiscardCnt	0
A-RxRepeatCnt	0
Bind Status	bind
Distance	0
MCS	BPSK_1_2(2.08Mbps)
U1-RecvByte	0
U1-SendByte	0
U2-RecvByte	0
U2-SendByte	0
sbusTxCnt	0
sbusTxCntExt	0
ppmTxCnt	0
CurTxFreq	5740
CurRxFreq	5740

www.taisync.com

- Status Device information, there's information of SN and firmware version,

Product Model: Taisync		Software Version: 1.1

Taisync

Status	Config	Upload

BaseBand Status

Device Information

Device Information	
SN	2.4G-5.8-AIR
version	20190201-B2224610
firmwareVersion	6.1.0.11_20220713
basebandVersion	20190201
antennaMode	DUAL_ANT_1T2R
radio	2.4_5.8G
maxRange	15KM
band	10M-10M

- Config Net settings, this is IP address of unit itself, it can be changed as per user's request.

Product Model: Taisync		Software Version: 1.1

Taisync

Status	Config	Upload

Net Settings
Radio Settings
Bind Settings
System Settings

Net Settings	
IP Address	192.168.199.18
Subnet Mask	255.255.255.0

set

- Config Radio settings, there are options of auto/antenna1/antenna2 for air antenna select, and options of 2.4G/5.8G/2.4G&5.8G for band select, band select must keep the same as ground unit. Transmitting power can be set for 2.4G/5.8G independently as per user request.

- Config Bind setting, The bind process can be triggered by clicking bind instead of the physical bind button.

- Config System settings and restore unit to factory settings by enabling

| Product Model: Taisync | Software Version: 1.1 |

Taisync

| Status | Config | Upload |

Net Settings
Radio Settings
Bind Settings
System Settings

System Settings

| Restore default settings | disable ⌄ |

set

- Upload Upload, browser and select file to be upgraded first, then click send to trigger the process.

| Product Model: Taisync | Software Version: 1.1 |

Taisync

| Status | Config | Upload |

Upload

| File | Choose File   No file chosen |
| Progress | |

send

Manage Ground Unit

- Status Baseband status, there there's detailed information like RSSI, SNR, TxPower, LDPC stats, telemetry stats, etc.

192.168.199.16/index.html

Product Model: Taisync   Software Version: 1.1

Taisync

| Status | Config | Upload |

BaseBand Status

Device Information

BaseBand Status			
A-LdpcPass	0	G-LdpcPass	0
A-LdpcFail	0	G-LdpcFail	0
A-Snr	0	G-Snr	0
A-RSSI0	-110	G-RSSI0	-102
A-RSSI1	-110	G-RSSI1	-102
A-RxVga0	0	G-RxVga0	69
A-RxVga1	0	G-RxVga1	69
A-TxPower	0	G-TxPower	24
A-LinkStatus	init	G-LinkStatus	init
A-LinkQuality	0%	G-LinkQuality	0%
A-FPGATemp	0	G-FPGATemp	0
A-AD9361Temp	0	G-AD9361Temp	50
A-CurrentAnt	manual-rf1	G-CurrentAnt	auto-rf1
A-TxOverflowCnt	0	G-TxOverflowCnt	0
A-TxTotleCnt	0	G-TxTotleCnt	292
A-TxCnt	0	G-TxCnt	292
A-RxSubmitCnt	0	G-RxSubmitCnt	0
A-RxDiscardCnt	0	G-RxDiscardCnt	0
A-RxRepeatCnt	0	G-RxRepeatCnt	0
downlinkDataRate	0kbs	uplinkDataRate	0kbs
Bind Status	bind	U1-RecvByte	0
Distance	0	U1-SendByte	0
UAV	offline	U2-RecvByte	0
MCS	BPSK_1_2(2.08Mbps)	U2-SendByte	0
CurTxFreq	5740	sbusRxCnt	0
CurRxFreq	5740	sbusRxCntExt	0
CurBand	5.8G	ppmRxCnt	0

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- Status Device information, there there's information on SN and firmware version, etc.

Product Model: Taisync   Software Version: 1.1

Taisync

| Status | Config | Upload |

BaseBand Status
Device Information

Device Information	
SN	2.4G-5.8-GND
version	20190201-B2225610
firmwareVersion	6.1.0.11_20220713
basebandVersion	20190201
antennaMode	DUAL_ANT_1T2R
radio	2.4_5.8G
maxRange	15KM
band	10M-10M
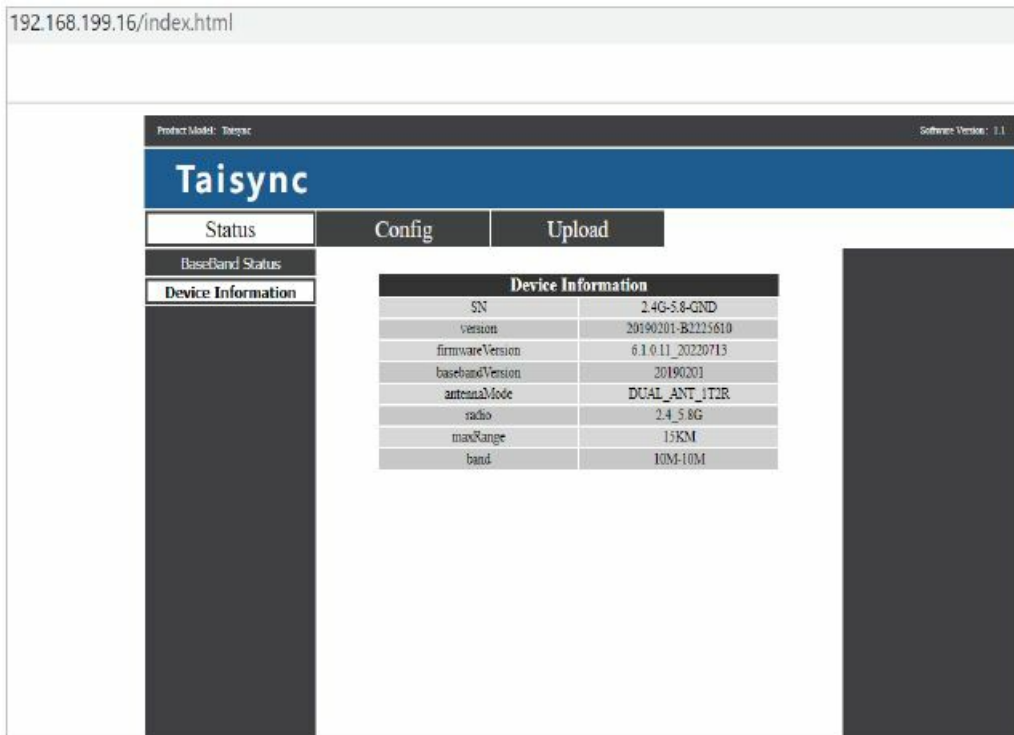
- Config Net settings, are the IP address of the unit itself, telemetry destination IP address, and UDP ports, all of these parameters can be changed as per user request.

Product Model: Taisync   Software Version: 1.1

Taisync

| Status | Config | Upload |

Net Settings
Radio Settings
Bind Settings
System Settings

Net Settings	
IP Address	192.168.199.16
Subnet Mask	255.255.255.0
Mavlink Host IP	192.168.199.33
Mavlink UDP Port	15000
Mavlink UDP Port Ext	15001

set
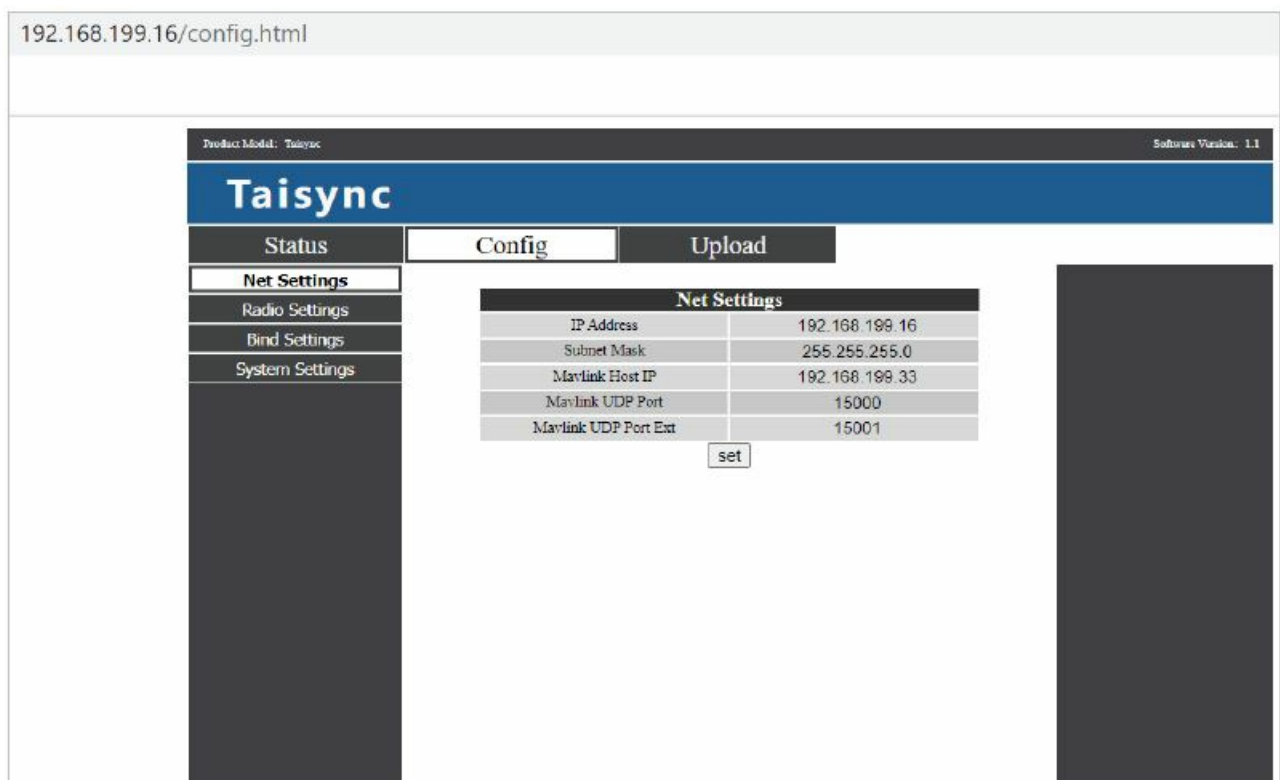
- Config Radio settings, there are hop, frequency, antenna selection, band selection and transmitting power can be set.
- When hop is auto, user do not need to/cannot set frequency, system dynamically selects the best frequency to use by itself, in other words, when hop is manual, user can set frequency manually.
- There are options of auto/antenna1/antenna2 for air/ground antenna select, and options of 2.4G/5.8G/2.4G&5.8G for band select, band select must keep the same as air unit.
- Transmitting power can be set for 2.4G/5.8G independently as per user request. Hop/Frequency/Work region/Air antenna select only can be changed when radio link between air unit and ground unit is securely established.

Product Model: Taisync   Software Version: 1.1

Taisync

| Status | Config | Upload |

Net Settings
Radio Settings
Bind Settings
System Settings

Radio Settings	
Hop	manual ⌄
Frequency	5740
Work Region	FCC ⌄
Air Antenna Select	antenna1 ⌄
Ground Antenna Select	auto ⌄
Band Select	5.8G ⌄
Power 2.4G	26
Power 5.8G	24

set

- Config Bind setting, bind process can be triggered by clicking bind instead of physical bind button.

Product Model: Taisync   Software Version: 1.1

Taisync

| Status | Config | Upload |

Net Settings
Radio Settings
Bind Settings
System Settings

Bind Settings	
Bind settings	bind

- Config System settings, baud rate for U1/U2 two serial ports can be set independently. When QAM mode is set as adaptive, unit will dynamically change modulation scheme based on real time signal quality. Role of pilot has bi directional transmission while observer only has downlink data.

Product Model: Taisync   Software Version: 1.1

Taisync

Status	Config	Upload

Net Settings
Radio Settings
Bind Settings
System Settings

System Settings	
Com Baudrate	115200 ⌄
Com Baudrate Ext	115200 ⌄
Qam Mode	Adaptive ⌄
Ground Role	pilot ⌄
Restore default settings	disable ⌄

set

- Upload Upload, browser and select file to be upgraded first, then click send to trigger the process.

192.168.199.16/upload.html

Product Model: Taisync   Software Version: 1.1

Taisync

Status	Config	Upload

Upload

File	Choose File No file chosen
Progress	

send

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part

15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator & your body. **www.taisync.com**.

Documents / Resources

TAISYNC Viulinx Dual-band Quick Start www.taisync.com	**TAISYNC PD21A-010P-01 Video and Data Transmission Device** [pdf] User Guide PD21A-010P-01 Video and Data Transmission Device, PD21A-010P-01, Video and Data Transmission Device, Data Transmission Device, Transmission Device

References

- 📶 **Wireless Video Transmitter and Receiver Expert - TaiSync**
- 📶 **Wireless Video Transmitter and Receiver Expert - TaiSync**
- **User Manual**