MK22/MK55

Long-range Wireless Transmission System

User's Manual V1.0 2022.10

Introduction / Installation Guide / Instruction

Disclaimer

- Please read the user's manual carefully before use. Be sure to pay attention to the warnings and understand all points completely.
- Please strictly abide by the local radio frequency management regulations.
- Please follow the installation steps in the manual to use this product. Our company and agent will not take legal responsibility for the damage of equipment or personnel caused by the installation and modification of users.
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Caution

Attention to installation

1. Before power on, make sure the antenna connection is reliably . Otherwise, it will cause damage to the device.

2. Make sure that the voltage is within the range of use.

3. Please pay attention to the EMC of all the electronic equipment on your drone.

4. It is recommended that the antenna should be installed downward and keep the antenna away from the metal on the drone.

5. Make sure to use the matching antenna.

Before use

1. Make sure that all cables are connected correctly and firmly.

2. No foreign objects (e.g. liquids, sand, etc.) can be entered inside the device.

3. It takes 15 seconds for the device to start. Video and data cannot be transferred until the device has finished booting.

4. Please ensure that the environment in which the equipment is used is free of other electromagnetic interference.

5. When the signal weakens, you can improve the effect by changing the heading direction of the antenna.

Get instructional video

In order to use the system correctly, you can get the instructional Video at the following address:

https://mainlinkaero.com/cn/video/video-main.html

Download Maestro Assistant

Download the software at the following address：

https://mainlinkaero.com/cn/download/download-main.html

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Packing list

Device

Ground

Air

Accessories
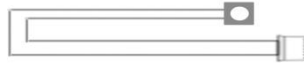
2Pin XT30 cable ×1	**2Pin cable** ×1
For Power	For pairing and reset
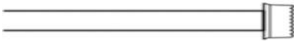
3Pin cable ×5	**4Pin cable** ×2
For UART and SBUS	For Ethernet

Short Antenna ×2	**Fiber-glass antenna** ×1

For air unit	For ground unit

Long Antenna ×2	**RF feeder** ×2
For air unit	For air unit to UVA
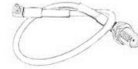
19Pin cable ×1

For Ethernet and Power_Out

Overview

Industry drone market is developing very fast in recent years. The fight time and distance of drones are getting longer and longer. MK22/MK55, a long-range wireless transmission system, is designed for VTOL fixed wing and other long-range drones. The system can transmit video, fight control data, gimbal control data, and RC data simultaneously. With the advantage of high level intergration and powerful function, MK22/MK55 is a typical good product to meet long-range transmission requirements.

There are two frequency bands——800MHz、1.4GHz and 2.4GHz. Users can choose according to their needs. Please choose the suitable frequency band according to local regulations.

MK22 can transmit data and video to 22km, MK55 can transmit data and video to 48km, making it very suitable for long range drone.

If you use our recommend ground station, you only need one cable with connector to connect the device and your ground station.

[1]Test under LOS and no interference conditions。

Features

Long distance

 -MK22   Up to 22km @ LOS

 -MK55   Up to 48km @ LOS

Video interface

 - Ethernet *1

Hopping/Fixed Frequency

 -Fixed: user defined

 -Hopping: automatic

BW

 -5/10/20 MHz

 Work temperature

- 40℃ ~ +70℃

Modulation

 - OFDM

Data interface

- UART（TTL/RS232）/SBUS，

Frequency Band

- 800MHz/1.4GHz/2.4GHz

Working mode

- Air unit can be ：Point to point mode

                        Repeater mode

Power range

- DC 9~28V   Battery 3S~6S

MK22 Interface Description

Air unit with side view

1. Ethernet

Number	Character	Description	Input/Output
1	T+	TX+	O
2	T-	TX-	O
3	R+	RX+	I
4	R-	RX-	I

2. UART1

Number	Character	Description	Input/Output
1	G	GND	I/O
2	R	RS232 RX	I
3	T	RS232 TX	O

3. UART2

Number	Character	Description	Input/Output
1	G	GND	O
2	R	TTL RX	I
3	T	TTL TX	O

4. Power

Number	Character	Description	Input/Output
1	G	GND	I/O
2	V	+Vcc (9v~28v)	I

5. SBUS1

Number	Character	Description	Input/Output
1	S	SBUS OUT	O
2	V	+5v (I max 1A)	O
3	G	GND	I/O

6. SBUS2

Number	Character	Description	Input/Output
1	S	SBUS OUT	O
2	V	+5v (I max 1A)	O
3	G	GND	I/O

7. Power indicator

This indicator is solid green when air unit is booting.

8. Link indicator

LED Pattern	Description
solid green	Wireless link is established
light off	Wireless link is lost

9. Status Indicator

LED Pattern (Blink only in booting)	Description
Blink 2 times	Initialization OK, Frequency is 1.4G
Blink 1 time	Initialization OK, Frequency is 800M
Blink 3 times	Switch mode (Swith from air to ground, vice verse)

Blink slow all the time	Enter configuration mode
Blink fast all the time	Device abnormal

10. SMA antenna connector.

Ground unit

1. Fiber glass antenna.

Please connect the standard fiber-glass antenna to this connector.

2. OLED display.

The OLED screen on the ground displays transmission parameters such as signal strength, frequency and bandwidth.The five LED lights below correspond to the power indicator, the chain indicator, and the signal strength indicator.

3. Battery

SONY XXXX batteries are available. Default switch 5 is in the center. When flipped up, use battery powered mode， Please install the battery in the battery holder; When flipped down, use the external power supply mode, please connected port 4 to an external power supply.

4. Connector.

The navigation plug includes ports, serial ports, SBUS, power supply and other interfaces. The specific definitions are as follows:
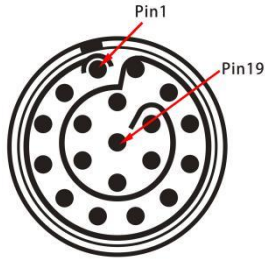
Number	Description	Input/Output
1	Rx+	I
2	Rx-	I
3	Tx+	O
4	Tx-	O
5	UART1 TX (RS232)	O
6	UART1 RX (RS232)	I
7	UART2 TX (RS232)	O
8	UART2 RX (RS232)	I
9	RC1_IN	I
10	RC2_IN	I
11	+5v	O
12	GND	I/O
13	GND	I/O
14	GND	I/O
15	GND	I/O
16	GND	I/O
17	GND	I/O
18	Vcc (9v~28v)	I
19	Vcc (9v~28v)	I

Installation

Air

1.Installing the air unit on your drone

Fixed the device and RF cable on your drone. Install the antenna. Pay attention to the connection of the antenna to tighten. Make the antenna downward. There is no metal or shielding within 20cm of the antenna.

2. Connecting the gimbal

Connect the gimbal to one ethernet of MK22. Connect UART1 to flight control. If you need to control the drone with RC, please connect SBUS_OUT of MK22 to flight control SBUS IN.

⚠️ Attention: If your gimbal only has HDMI/SDI/AV interface, please refer to the section of "MK22 with M05E". When using the SBUS, please pay more attention to the power.

Do not put the antenna near the motor or ESC, otherwise the device will be interfered.

Ground

1.Connect the antenna

Connect the fiber glass antenna which was supplied along with the device to the ground unit. They have common port—SMA. Make sure to tighten the joint.

Connect the RC receiver and other cables.

Connect the RC receiver SBUS output to the ground unit SBUS_IN and then connect the power cable.

2. Connect to the Ground Station

The MK22 ground unit can be connected to the Ground Station with ethernet or UART.

Get Video

You can get video via RTSP, and decode the video with video decoding software such as VLC. Also, you can get video using Mission Planner and QGC.

Get data

1.You can get data from ground unit via UART1 and UART2. Maybe you need a UART to USB converter.

2. You can get data from Ethernet port using UDP/TCP protocol.

MK22 Instruction

Quick start

1. Preparing

Make sure all the connections are ready, including the antenna, Ethernet cable and so on.If you connect a ethernet gimbal to MK22 air unit, the GH1.25 interface is recommended for high reliability.

2. Power on

The DC voltage is 9~28V. After power on, the POWER LED will be solid green.

Any question, please refer to the FAQ. It takes 15 seconds to start up. After the system starts, the wireless transmission can be established.

3. Using PC to get video from ethernet gimbal.
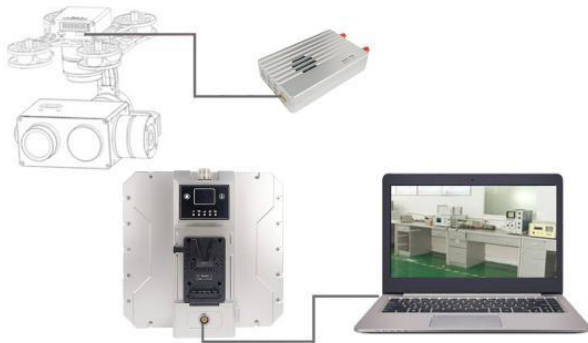
3.1 Connect gimbal、 MK22 and PC as shown above。

Attention： Please ensure that gimbal and PC on the same network segment. The default IP of MK22 is in the table below. The network segment of gimbal and MK22 can be

the same or different. MK22 can transmit video and data transparent.

MK22 air unit default IP	192.168.1.200
MK22 ground unit default IP	192.168.1.236

3.2 Get video

User can get video in PC through the software provided by the gimbal manufacturer. Also, user can use some common software such as VLC.

Take VLC for an example.

In the "open media" page, please input the following address：

rtsp://192.168.1.36:554/stream0

You can get video after click "play".

MK22 with CODEC module MF05

If your gimbal has a HDMI/SDI/AV interface, you can add CODEC module MF05 to work with MK22. MF05 contains encoding module MF05E and decoding module MF05D. You only need one single cable in the accessory box to connect MK22 and MF05. It is shown in the picture below.

For more information, please refer to the MF05 user's manual.

MK22 with Mission Planner

Follow the steps to use MK22 with Mission Planner:

1. Connect the UART1 of MK22 air unit to flight controller, such as Pixhawk. Connect the gimbal to one ethernet of MK22.

2. Making sure all the air and ground cable connection is finished. Power on the system.

3. Install Mission Planner to your computer.

4. Set the IP address of the computer.

  Open "Network and Internet"setting.

  Select "Internet Protocol version 4 (TCP / IPv4) properties".

  Change IP address to "192.168.1.xxx"（xxx is in 0～255 , you cann't use IP 192.168.1.200 and 192.168.1.236, because these IP were set in MK22）.

⚠ **Attention：The IP "192.168.1.XXX" is just an example. You need to set up your PC the same IP section as your gimbal.**
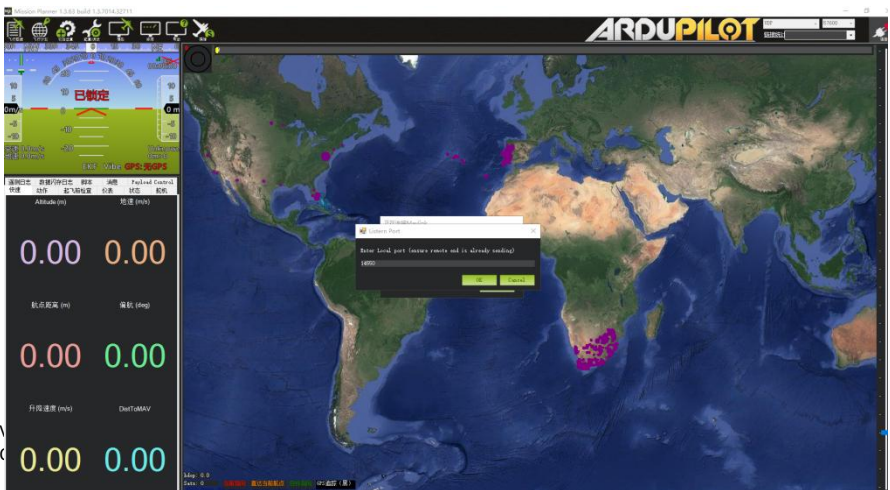
5. Get data

There are three methods to get data from MK22 ground unit, using Mission Planner：

- UDP port via Ethernet;
- TCP port via Ethernet；
- UART (COM)

5.1 Get data from UDP port.

Open **Mission Planner**，select UDP，click the "connect" button, it will bring up a new window 'Listen port'，change the port to 14550（If the UDP port number has been changed on the web page, please fill in the new number. For more information, please go to the web page configuration）.Then click "OK", Mission Planner will get flight data。

5.2 Get data from TCP port.
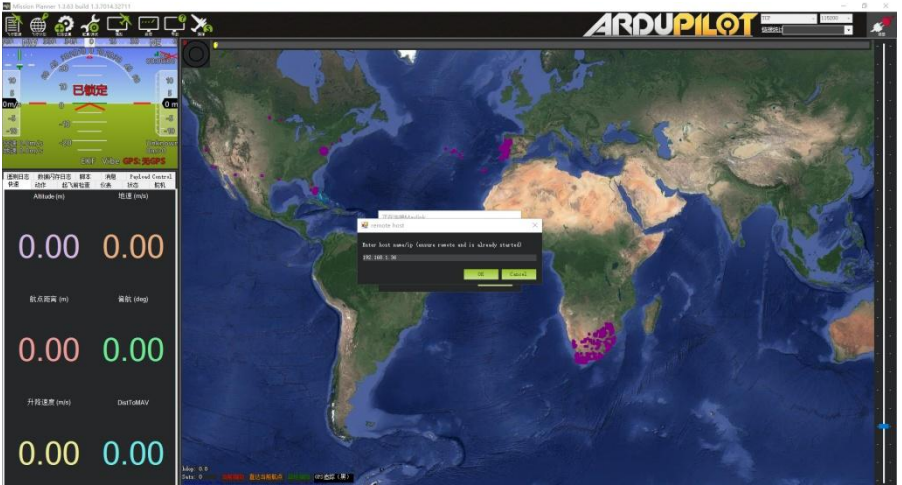
Open **Mission Planner**，select TCP，click the "connect" button, it will bring up a new window 'Listen port'，fill in the blank with IP: 192.168.1.236, remote port is 5760 ⚠️ (If the IP address and TCP port number has been changed on the web page, please fill in the new IP and port number. For more information, please go to the web page configuration）.Then click "OK", Mission Planner will get flight data.
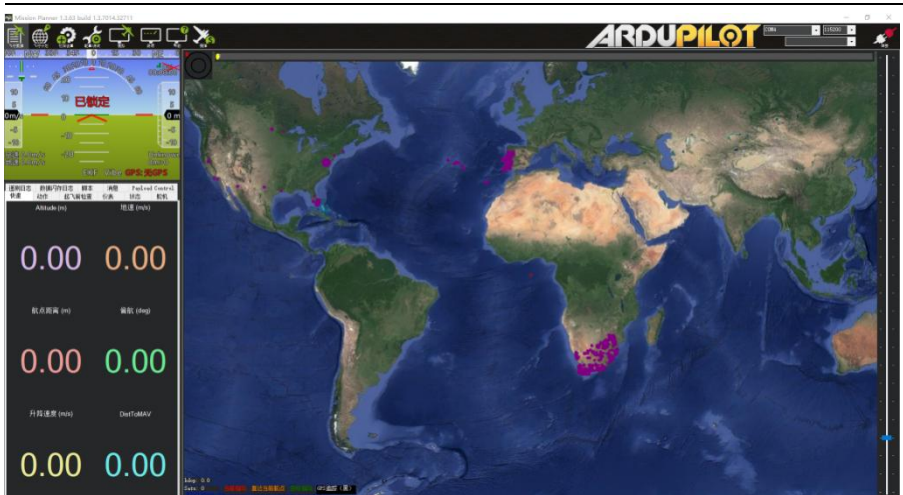
5.3 Get data from UART(COM)；

Connect the ground unit UART1 with a UART（TTL） to USB converter to the computer. Before this, please install the driver in the computer.

Open **Mission Planner**, select COM (Please check the COM number) and the right baud rate, click the "connect" button, Mission Planner will get flight data.

6. Get video

When you open the Mission Planner, click Video and then Set GStream Source, as show below：

Input the address: rtspsrc location=rtsp://192.168.1.36/stream0 latency=0 ! decodebin ! videoconvert ! video/x-raw,format=BGRA ! appsink name=outsink

⚠️ Attention: The IP "192.168.1.36/stream0" is an example of the gimbal, please use your own gimbal RTSP address.

Improve RC controller distance through SBUS

1. Connect   air unit SBUS_OUT to flight controller RC IN.

Using the SBUS cable in the accessory box to connect the air unit and the flight controller. The cable is 3 pin.

⚠️ Attention：The SBUS_OUT port of air unit is output. The maximum of +5V output current is 1A. If you don't need the +5V, let it open. Do not take it as input. Otherwise, the stability of the system will be affected.
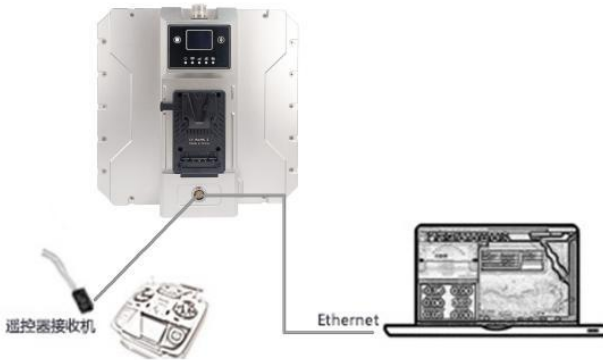
2. Connect the RC receiver to the ground unit

Using the SBUS cable in the accessory box to connect the ground unit to the RC receiver.
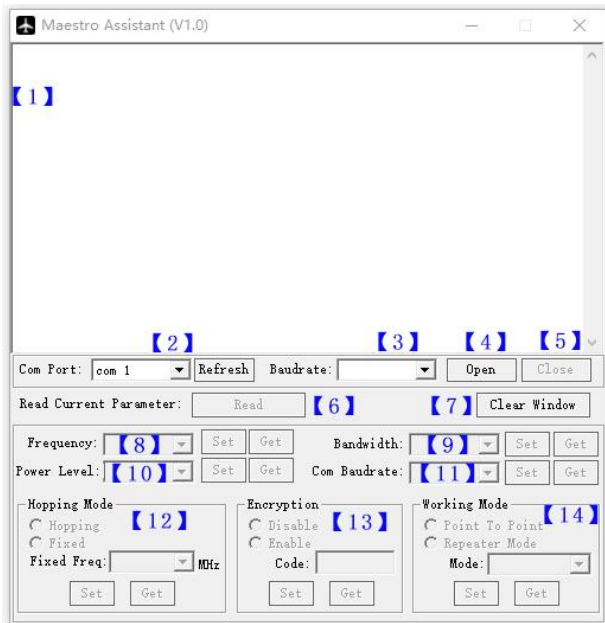
⚠ Attention：The SBUS_IN port of ground unit is input. The maximum of +5V output current is 1A. You can use it to power the RC receiver. Please pay more attention to the cable line order.

遥控器接收机   Ethernet

Maestro Assistant

Interface of Maestro Assistant

Function description：

【1】Information display：display status information for the MK22。

【2】UART(COM) select：Select the right COM number of the computer to connect MK22. If you want to change to another COM , please click the 'Refresh' button.

【3】Baud rate select：Select the right baud rate for the COM. Make it the same as MK22 UART2.

【4】Open COM button.

【5】Close COM button.

【6】Read current parameter button：click this button to get the current parameter of device。

【7】Clear window button: to clear the information display.

【8】Select frequency：The MK22 frequency band has been set. User cann't change. You can click 'Get' button to get current frequency band.

【9】Select BW：There are four BW to be selected——3MHz/5MHz/10MHz/20MHz. Choose the BW you needed，and click 'Set' button to complete setup. Click the 'Get' button to get current BW.

【10】Select Power Level：There are three power level to be selected——High/Mid/Low Choose the power level you needed，and click 'Set' button to complete setup. Click the 'Get' button to get current power level.

【11】Select baud rate：You can select the right baud rate for MK22 Uart1 in this box. Choose the baud rate you needed，and click 'Set' button to complete setup. Click the 'Get' button to get current baud rate.

【12】Select hopping mode: There are two mode to be selected——Hopping/Fixed. Choose the mode you needed，and click 'Set' button to complete setup. Click the 'Get' button to get mode. When you select Fixed mode, you need to choose a fixed frequency below. The fixed frequency is related to frequency band and BW.

【13】Select Encryption: You can disable/enable the encryption. When enable this function, you can set your private password. The password should in the range of 100000~999999. Devices with different password do not link.

【14】Select Working mode: There are two working mode of MK22——Point to Point mode and Repeater mode. Choose the working mode you needed，and click 'Set' button to complete setup. Click the 'Get' button to get current working mode. This function only needs to be set up on the M51 air unit. The ground unit can synchronize automatically. If you select Repeater mode, you need to select the air unit whether it is TX or repeater.
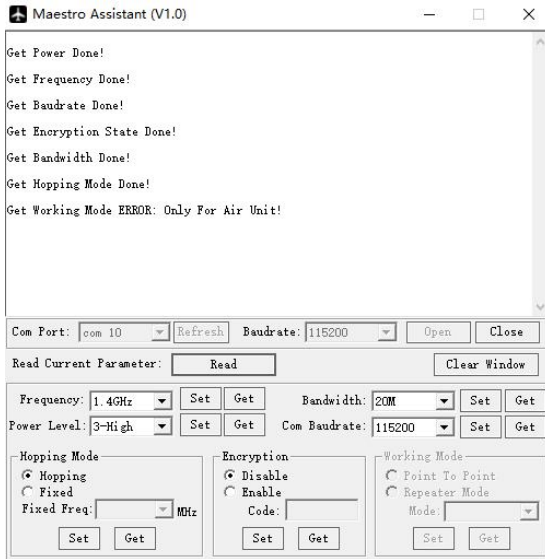
How to use Maestro Assistant

1. Connect MK22 with Maestro Assistant.

Maestro Assistant is a Windows software that configures MK22. Before configuration,

please connect the UART2 to computer via UART(TTL) to USB converter.

Select the right COM and baud rate. Click 'open' button.

2. Read current parameter。

After step1, click 'Read' button. All current parameter will print on the information display. Because the Working mode is only for air unit. The Working mode box will turn grey on ground unit configuration.
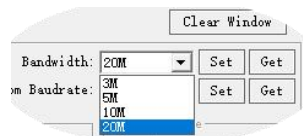
3. Configurations

3.1 Frequency Band

The MK22 frequency band has been set. User can not change. You can click 'Get' button to get current frequency band.

3.2 Bandwidth

There are four BW to be selected——3MHz/

5MHz/10MHz/20MHz. The greater the BW, the more data can be transmitted, but the weaker the anti-interference. In Fixed frequency mode, MK22 will have more frequency to fix with small BW.

3.3 RF Power

MK22 has three levels of power to choose. In order to avoid affecting other devices, please select the appropriate transmission power. The specific RF power values are as follow

1-Low：20dBm;

2-Mid：27dBm;

3-High：32dBm。

3.4 Hopping/Fixed Mode

There are two mode to be selected——Hopping /Fixed. In Hopping mode, M51 can automatically adjust frequency when there is interference. In fixed mode, the device is fixed to a special frequency . So in one frequency band, up to four sets of devices can be used.

3.5 Encryption

The wireless signal can be encrypted during transmission. When enable this function, you can set your private password. The password should in the range of 100000~999999. Devices with different password do not link. When disable this function, different MK22 air and ground can link each other.。

3.6 Working Mode

MK22 can work in Point to Point Mode and Repeater Mode. Only the air unit of MK22 need to be set. The ground unit can synchronize automatically. In Repeater mode, the air unit can be set to TX (transmitter) or Repeater.
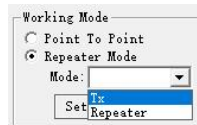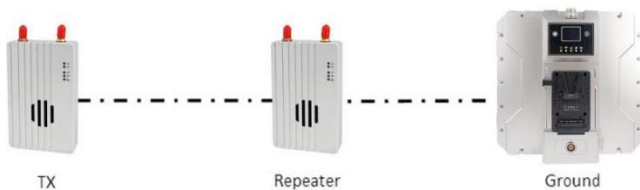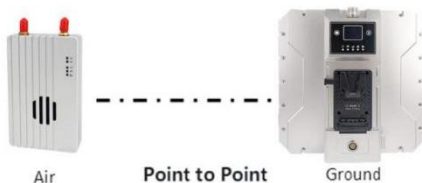
Repeater Mode

With Repeater mode, MK22 can be easily used under NLOS situation. You only need to buy one more air unit and then can establish a repeater system easily.

MK22 Web UI Configuration Description

Parameter of MK22 can also be set through web UI. User can enter IP address through the browser to access the web UI. The air unit default IP is 192.168.1.200. The ground is 192.168.1.236.　In Repeater mode. TX is 192.168.1.200. Repeater is 192.168.1.201.

If you change the device to another IP address, please access the web UI through the new IP. If you forget the IP you changed, press the button on the device for 10 seconds when the device is power on to restore to factory settings.

You need to change your computer IP to 192.168.1.X so as to access the device web UI. As shown in the following figure：
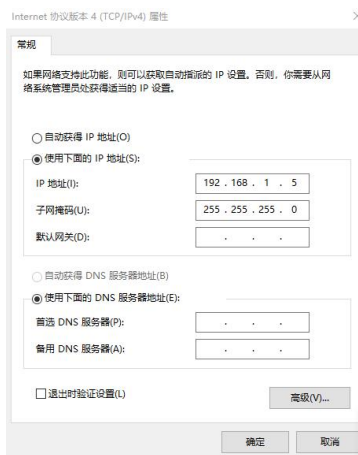
Login

After you enter IP address in the browser, you will see the 'Welcome' page. Default username is: admin, password is: 123456. Then you can login.
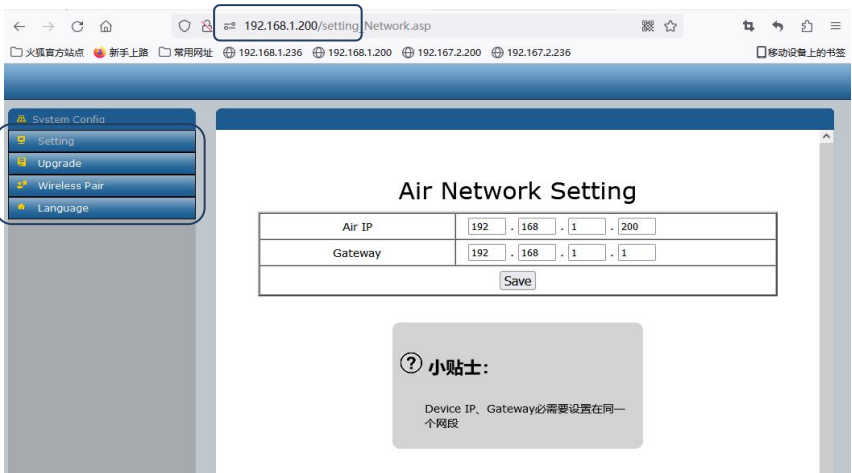
The system configuration page of Air includes four Settings menus, such as Settings, upgrades, wireless pairing and language Settings. Click on any menu on the left, you can switch the Settings page.

Setting

The Settings page includes network Settings, data Settings, wireless Settings, system restore and system reboot, as shown in the picture below. Click on anyone to switch.

Air Network Setting can set the Air IP address and gateway address. The following table describes the parameter values. The Device IP address and Gateway must be on the same network segment.

Parameter	Value	Description
Device IP	Default address Air ： 192.168.1.200 Relay ： 192.168.1.201 Ground：192.168.1.236	User can change
Gateway	Default 192.168.1.1	User can change

If you change the device parameter, it will be in effect after rebooting. If you change IP address, please enter the new address in your browser after rebooting.

Ground Network Setting

Device IP	192 . 168 . 1 . 236
Gateway	192 . 168 . 1 . 1
Remote Air IP	192 . 168 . 1 . 200
Save	

⑦ 小贴士:

Device IP、Gateway、Remote Air IP
必需要设置在同一个网段

Remote Air IP: 集群模式下当有多个天
空端同时连接地面端时,

通过该IP地址指定对应天空端的UART2数
据从本地UART2输出

The Ground Network Setting can set the ground IP address, device gateway address, and remote air IP address in cluster mode. As the following table describes, the Device IP, Gateway, and Remote Air IP must be on the same network segment. In cluster mode, when multiple airs are connected to the ground at the same time, the UART2 data of the corresponding air is output from the local UART2 through the Remote Air IP address.
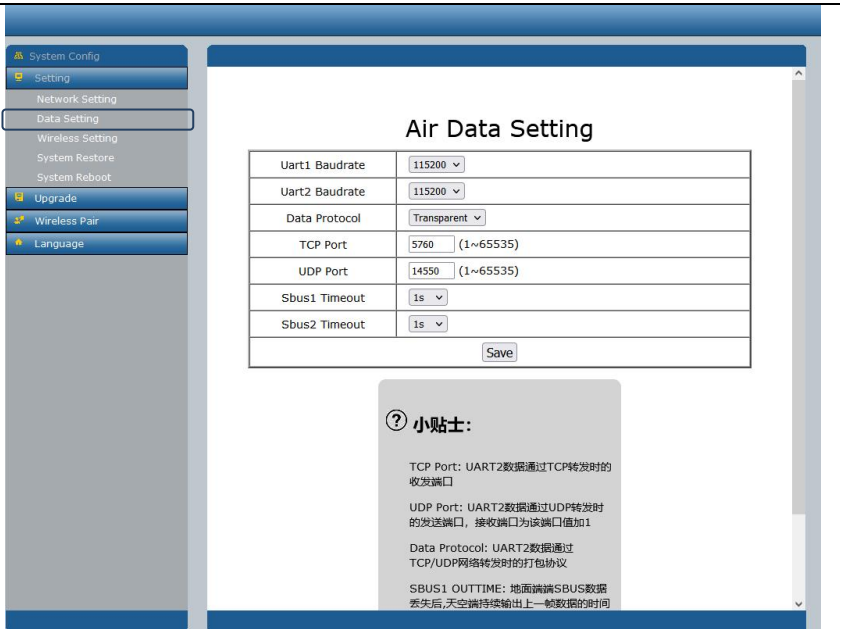
The Air Data setting can set the baud rate of the serial port on the air, the packet protocol for data transfer from serial port 2 to network forwarding, the TCP/UDP port number for network forwarding, and the output timeout period after SBUS data lost. The following table describes the parameter values.

Parameter	Values	Description
Uart1 Baud rate	9600/19200/38400 57600/115200	User can change，Default 115200
Uart2 Baud rate	9600/19200/38400 57600/115200	User can change，Default 115200
Data Protocol	Transparent/Mavlink	User can change，Default Transparent
TCP Port	1~65535	User can change，Default 5760
UDP Port	1~65535	User can change，Default 14550

SBUS1 Timeout (After SBUS1 data loss, the time of outputting the last frame of data)	0~10s	User can change，Default 1s
SBUS2 Timeout (After SBUS2 data loss, the time of outputting the last frame of data)	0~10s	User can change，Default 1s
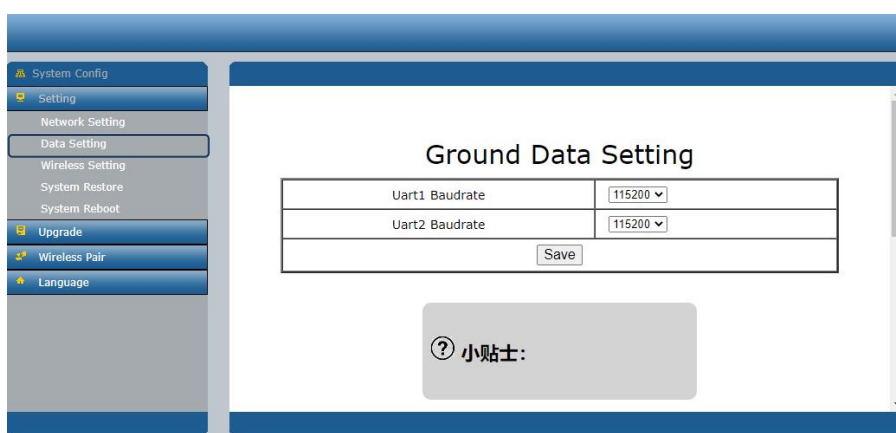
The Ground Data setting can set the baud rate of the serial port on the ground. The values of the parameters are described in the above table: Uart1 baud rate and Uart2 baud rate.
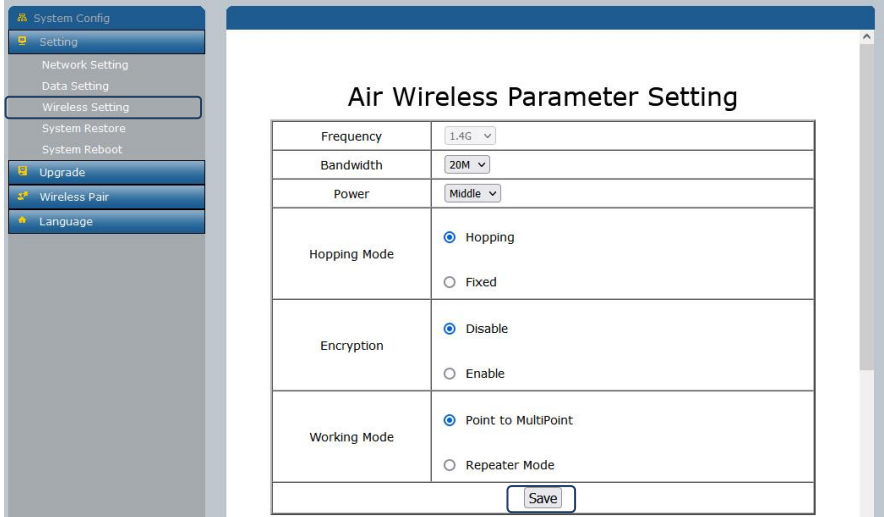
The Air Wireless Parameter Setting can set the wireless transmission data of device, the parameter values and function descriptions shows at the following table.

Parameter	Value	Description
Frequency	800M/1.4G	User can query
Bandwidth	3/5/10/20M	Optional
Power	High/Middle/low	Optional
Hopping Mode	Hopping/Fixed	Optional
Encryption	Disable/Enable	Optional
Working Mode	Point to Point Repeater Mode	Only the air unit of MK22 need to be set. The ground unit can synchronize automatically

Web UI configuration is the same as Maestro Assistant. User can check it in 'How to use Maestro Assistant' part 3 for more details.

When you configure parameter through Web UI, It will be in effect after rebooting.

The Ground Wireless Parameter Setting can set the wireless transmission data of device, the parameter values is the same as the air. As showed in above table.

The Air System Restore can make air of MK22 to factory settings. Please click on the "Restore"button to confirm if you need "Restore to factory settings?".

Please click on the "Sure" button to set the parameter to factory default value.

The Ground System Restore can make ground of MK22 to factory settings, the detail operation is the same as air.

The Air System Reboot can make air of MK22 to restart. Please click on the "Reboot"button to confirm if you need "Reboot device now?".Please click on the "Sure" button and enter the IP address in the browser and log in again.

The Ground System Reboot can make ground of MK22 to restart, the detail operation is the same as air.

System update

The Air System Update function is used for firmware upgrade. Before the upgrade, please download the required firmware from our official website to your computer. Please click "Browse..." to select the upgrade file and click "send" to confirm. The system sends the upgrade file and displays the upgrade progress on the web page. After the upgrade is complete, the system automatically restarts. Log in to the IP address again to check whether the firmware version is updated.

The operation of the Ground System Update function is the same as that of air.

Wireless pair

The Wireless Pair function is used to pair the air and the ground. The operation process is as follows: Power on the device. Click " Pair "button to start pairing, and there will be a progress bar to show the pairing progress; The pairing process lasts up to 2 minutes; When the pairing is complete, the page will display a message indicating that the pairing succeeded or failed. The signal strength indicator light will indicate the current pairing state in the form of a water lamp.

Language

The Air Language Setting is used to set the page language, it supports "English" and "Simplified Chinese". Please click " Save " button to save the setting, it will take effect immediately.

Advanced User Display

After enter the IP address of air, please input user name as "root" and the password as "root123" at the login interface. Click login, then enter the advanced user configuration page of air. As shown in the following picture.

Air Baseband Information

Frequency	14379	Distance	0
Air ANT1 RSSI	0	Air ANT2 RSSI	0
Air ANT1 SNR	0	Air ANT2 SNR	0
Air ANT1 PathLoss	0	Air ANT2 PathLoss	0
Ground ANT1 RSSI	0	Ground ANT2 RSSI	0
Ground ANT1 SNR	0	Ground ANT2 SNR	0
Ground ANT1 PathLoss	0	Ground ANT2 PathLoss	0
Air Netlink Udp Send	0	Air Netlink Udp Recv	0
Air Netlink Tcp Send	0	Air Netlink Tcp Recv	0
Uart2 Local Submit	0	Uart2 Remote Recv	0
Uart2 Remote Submit	0	Uart2 Local Recv	0
SBUS1 Local Submit	0	SBUS1 Remote Recv	0
SBUS1 Remote Submit	0	SBUS1 Local Recv	0
SBUS2 Local Submit	0	SBUS2 Remote Recv	0
SBUS2 Remote Submit	0	SBUS2 Local Recv	0

The advanced user configuration page has an extra "Air Baseband Information" than the common user page. You can dynamically refresh and observe the wireless communication quality, antenna connection, and wireless data transmission of air in real time. The following table describes the parameter values.

Parameter	Values	Description
Frequency	14279~14479MHz	Communication Frequency
Distance	0~50000m	Distance of Air to Ground
Air ANT1 RSSI	-141 ~ -44	RSSI of Main Antenna of Air
Air ANT2 RSSI	-141 ~ -44	RSSI of Auxiliary Antenna of Air
Air ANT1 SNR	-50 ~ 50	SNR of Main Antenna of Air
Air ANT2 SNR	-50 ~ 50	SNR of Auxiliary Antenna of Air
Air ANT1 PathLoss	0~191	Path loss of Main Antenna of Air
Air ANT2 PathLoss	0~191	Path loss of Auxiliary Antenna of Air
Ground ANT1 RSSI	-141 ~ -44	RSSI of Main Antenna of Ground

Ground ANT2 RSSI	-141 ~ -44	RSSI of Auxiliary Antenna of Ground
Ground ANT1 SNR	-50 ~ 50	SNR of Main Antenna of Ground
Ground ANT2 SNR	-50 ~ 50	SNR of Auxiliary Antenna of Ground
Ground ANT1 PathLoss	0~191	Path loss of Main Antenna of Ground
Ground ANT2 PathLoss	0~191	Path loss of Auxiliary Antenna of Ground
Air Netlink Udp Send	0~4294967295	The total number of byte through UDP protocol which send from serial port 2 of Air
Air Netlink Udp Recv	0~4294967295	The total number of byte through UDP protocol which receive from serial port 2 of Air
Air Netlink Tcp Send	0~4294967295	The total number of byte through TCP protocol which send from serial port 2 of Air
Air Netlink Tcp Recv	0~4294967295	The total number of byte through TCP protocol which receive from serial port 2 of Air
Uart2 Local Submit	0~4294967295	The total number of byte through network transparent transmission to opposite terminal which input from local serial port 2
Uart2 Remote Recv	0~4294967295	The total number of byte through network transparent transmission to serial port 2 which receive from opposite terminal
Uart2 Remote Submit	0~4294967295	The total number of byte through network transparent transmission to serial port 2 which input from opposite terminal
Uart2 Local Recv	0~4294967295	The total number of byte through network transparent transmission to opposite terminal which receive from local serial port 2
SBUS1 Local Submit	0~4294967295	The total number of byte through network transparent transmission to opposite terminal which input from local SBUS 1

SBUS1 Remote Recv	0~4294967295	The total number of byte through network transparent transmission to SBUS 1 which receive from opposite terminal
SBUS1 Remote Submit	0~4294967295	The total number of byte through network transparent transmission to SBUS 1 which input from opposite terminal
SBUS1 Local Recv	0~4294967295	The total number of byte through network transparent transmission to opposite terminal which receive from local SBUS 1
SBUS2 Local Submit	0~4294967295	The total number of byte through network transparent transmission to opposite terminal which input from local SBUS 2
SBUS2 Remote Recv	0~4294967295	The total number of byte through network transparent transmission to SBUS 2 which receive from opposite terminal
SBUS2 Remote Submit	0~4294967295	The total number of byte through network transparent transmission to SBUS 2 which input from opposite terminal
SBUS2 Local Recv	0~4294967295	The total number of byte through network transparent transmission to opposite terminal which receive from local SBUS 2

After enter the IP address of ground, please input user name as "root" and the password as "root123" at the login interface. Click login, then enter the advanced user configuration page of ground. The advanced user configuration page has an extra "Air Baseband Information" than the common user page. The operation of the Ground Baseband Information function is the same as that of air.

Specification

Category	Item	Detail
Wireless Performance	Frequency band	800MHz/1.4GHz
	Frequency range	800MHz：806MHz～825MHz 1.4GHz：1427MHz～1447MHz 2.4GHz: 2400~2480MHz
	Band width	5MHz/10MHz/20MHz
	Modulation	OFDM
	EIRP	MK22: 30dBm±1dB MK55: 33dBm±1dB
	Sensitivity	≤-95dBm
	Range	MK22: 22km MK55:48km[1]
	Bit rate	30Mbps@20MHz
Power Range	DC 9~28V	
Power consumption	≤8.5W	
Interface	Antenna	SMA *2
	Power	XT30
	UART	TTL 3.3V, 1 start bit, 8 data bit, 1 stop bit, no parity., Baud rate 115200（default）, 57600, 38400, 19200, 9600
		UART1 and UART2
	SBUS	SBUS_IN
		SBUS_OUT
	Ethernet	4 Pin
	Button	1
	Switch	For air and ground switch

Antenna	Interface	SMA
	Type	Air：Glue stick antenna 20cm Ground ： Fiber glass antenna, penal antenna
	Polarization type	Vertical
	Gain	Air：2.5dBi Ground：12dBi
	SWR	≤2.0
Environment	Work temperature	-40℃～+70℃
	Storage temperature	-40℃～+85℃
	Humidity	5~95%，non-condensing
Appearance	Size	112 X 63.5 X 19 mm
	weight	143g

*1 The distance is tested under the condition of no interference and LOS.

FAQ

1	Description	The power indicator light is not on after powering up
Solutions：		
1. Check the wiring order of the power cable.		
2. Check the DC power range.		

2	Description	Link indicator light is not on after powering up.
Solutions：		
1. Check that the RF cable is connected properly.		
2. Check that the BW shortcut keys of the air and ground are in the same position.		
3. Check the antenna is OK.		

3	Description	The link indicator light is OK. But no data output.
Solutions：		
1. Check the UART cable wiring order.		
2. Check the UART baud rate.		
3. Please contact our company's after-sales service.		

4	Description	The ground unit can't output RTSP video streaming.
Solutions：		
1. Check the cable connection and wireless link is OK.		
2. Check the IP address of computer is right.		
3、 Check the RTSP server address is correct.		
4、 Please contact our company's after-sales service.		

Note： For more information, please check out our official video tutorial. Foreign users please check You Tube .

If you have any questions about this document, please contact

Mainlink by sending a message to support@mainlinkaero.com.

You can also visit www.mainlinkaero.com