

ST-201PRO

RF Stereoscopic Glasses



Technical characteristics

- Supports 125 communication channels
- 5V USB charging
- Ultra low power consumption, continuous working time greater than 150 hours after a single charge
- Supports multiple frame rates: 100Hz~240Hz
- Supports automatic shutdown without signal

Technical Specification Table

Radio Frequency	
Frequency range	2.4G(2.400~2.4835GHz)
Number of channels	125
The farthest working distance	≥35m
Button and I/O port	
USB	Configuration and charging
Sliding switch	ON/OFF
Power Supply	
Battery	90mAh rechargeable lithium battery

Operating instructions

1 Power on

When the glasses are turned off (with the switch in the OFF position), move the switch forward to the ON position and it will automatically bounce back to the middle standby position. If a signal is received at this point, the glasses will start working.

When the glasses are in standby mode (with the switch in the middle position), move the switch forward to the ON position and it will automatically bounce back to the middle standby position. If a signal is received at this point, the glasses will start working.

2 Shutdown

Move the switch back from the middle standby position to the OFF position.

3 About signal loss

Stereoscopic glasses that work normally may experience signal loss (such as leaving the RF sensing range or the application program stopping stereo output). After the RF signal is lost, the stereoscopic glasses will automatically close after 10 seconds.

4 Charging

When the battery level is low, the indicator light will quickly flash dozens of times and turn off the glasses. Users can charge their glasses through a USB cable. Each full charge takes approximately 1 hour.

Product Description

ST-201PRO radio frequency stereoscopic glasses are active stereoscopic glasses developed by Shanghai RBD Information Technology Co., Ltd. using radio frequency signals as carriers. ST-201PRO RF stereoscopic glasses need to work in conjunction with RF-100P RF stereoscopic emitter. ST-201PRO RF stereoscopic glasses are easy to wear, easy to operate, and have a long battery life. ST-201PRO radio frequency stereoscopic glasses are suitable for use in various virtual reality (VR) environments, theme parks, stereoscopic cinemas, and more.

RF stereoscopic glasses vs IR stereoscopic glasses

Compared with IR stereoscopic glasses, RF stereoscopic glasses have the following characteristics:

1. Only one RF emitter needs to be deployed in a single venue.
2. Avoiding mutual interference between IR devices.

For example: In a virtual reality environment, both the IR emitter and the optical camera of the tracking system use 930nm wavelength infrared, which can interfere with each other when used together and must be synchronized. By using radio frequency stereoscopic glasses, interference can be avoided.

For example: The infrared emitted by an infrared stereo emitter can interfere with the use of infrared remote control devices (projector remote controls).

3. No dead corners in the sensing range.

Infrared rays may be obstructed by objects such as walls, while radio frequency signals can penetrate walls or glass.

Optional Accessories

RF-100P RF Stereo Emitter

RF-100P radio frequency stereo emitter is a stereo signal transmitter developed specifically to work with ST-201PRO radio RF glasses.



Tracking identification

The ST-201PRO radio frequency stereoscopic glasses have two specifications of tracking labels for users to choose from: Type A and Type B.



①power ②USB ③light

RF-100P RF Stereo Signal Emitter



Technical characteristics

- Matching ST-201PRO RF Stereoscopic Glasses
- Supports up to 125 signal channels and can be used in complex electromagnetic environments
- Support for connecting external antennas
- Signal coverage radius: ≥ 35 meters
- There is no limit to the number of stereoscopic glasses connected
- Supports refresh rates of 100-240Hz
- Support for frame delay adjustment function
- Support remote control through serial or network port
- Supports firmware upgrades
- Supports rack mounted installation

Optional Parts

ST-201PRO RF Stereoscopic Glasses

ST-201PRO radio frequency stereoscopic glasses are specially developed to work with RF-100P radio frequency stereoscopic signal transmitters.



External antenna

Users who are far away from the installation site and usage site of the transmitter can choose an external antenna. The external antenna can be installed on the ceiling of the usage site through a 50 Ω coaxial cable connection.



Product Description

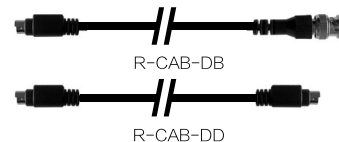
RF-100P RF Stereo Signal emitter is a stereo signal transmitter developed by Shanghai Ruibidu Information Technology Co., Ltd. (RBD) using RF signals as carriers. The RF-100P RF stereo signal emitter has a long sensing distance, easy installation, low site requirements, and supports use in complex electromagnetic environments. The stereo glasses that match the RF-100P RF stereo signal emitter are ST-201-PRO RF stereo glasses. The RF-100P RF stereo signal emitter can be widely used in various types of virtual reality environments, theme parks, stereoscopic cinemas, etc.

Technical Specification Table

Radio Frequency			
Frequency range		2.4G (2.400~2.4835GHz)	
Number of channels		125	
Output power		-20 dBm~10 dBm	
Farthest working distance		≥35m	
Antenna		3 dBmAntenna	
Buttons and I/O ports			
Front Panel		Rear Panel	
USB	Used to configure and add glasses	SYNC IN	Stereo synchronization signal input
LCD	1.8" TFT	RS-232	Used to configuration and firmware upgrades
Botton	interface operation	REVERSE	left/right eye switch
Power			
Power Input		100~240V (50~60Hz)	

Stereo synchronous signal cable

The stereo synchronous signal cable is an important accessory for connecting computers/projectors and stereo signal emitters. There are two models of standard stereo synchronous cables, namely: DIN to BNC cable (R-CAB-DB) and DIN extension cable (R-CAB-DD). The DIN to BNC cable has a BNC port on one end and a DIN port on the other end. DIN extension cables have DIN ports at both ends, and the standard length for both models of cables is 0.5 meters.

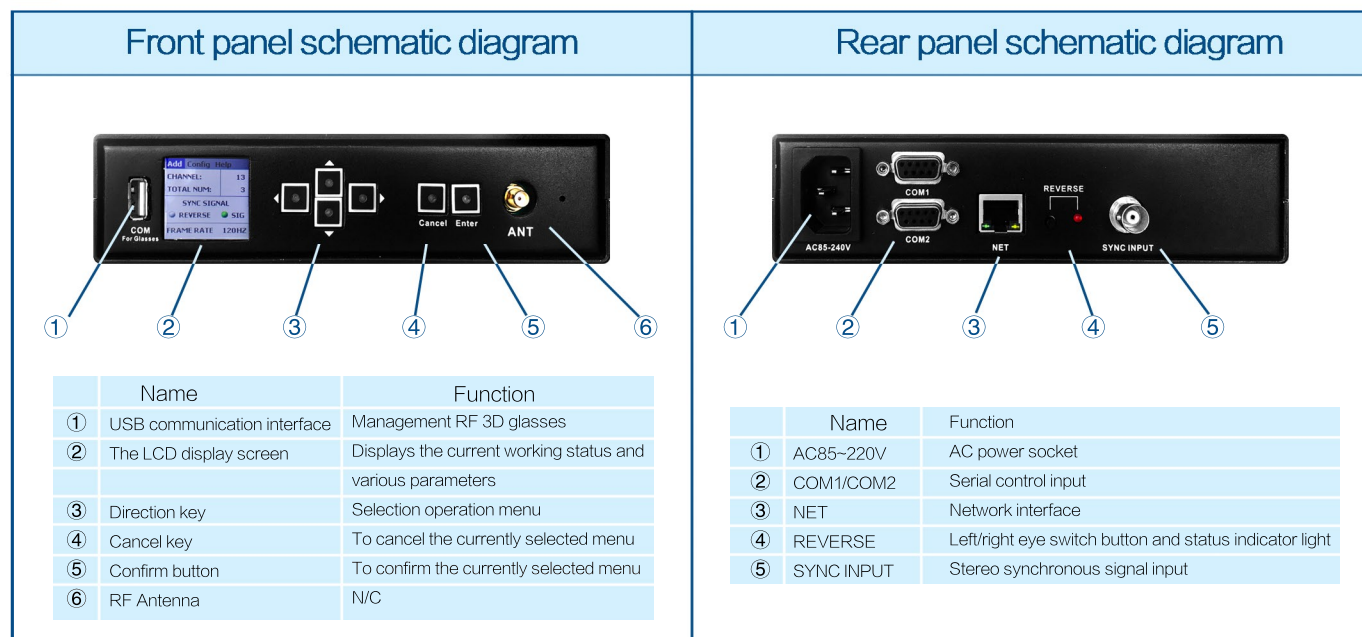


Rack Mount Components

Users who need to install the transmitter on the rack can purchase rack installation components. Rack mounted components occupy 1U of rack space.

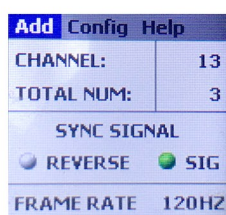


1 Product diagram

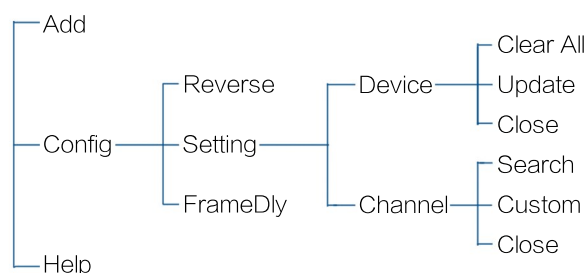


2 LCD screen operation guide

- Press the left (◀) or right keys (▶) to activate the menu bar or select the menu bar.
- Pressing the "Enter" key can expand the current active menu bar or activate the current menu options.
- Press the up key (▲) or down key (▼) to select menu options.
- Press the "Cancel" button to go back to the previous step of the operation.



3 Display screen management menu structure

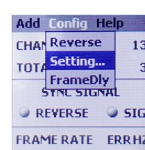


4 Common operating instructions

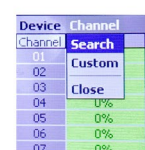
① Radio frequency channel interference degree search

The RF-100P RF stereo emitter adopts 2.4G technology, and there are many other types of short-range wireless transmission technologies in this frequency band, such as Bluetooth, WiFi, etc., so RF channel interference search is required. Set the working channel of the stereoscopic glasses on a channel with low interference to avoid electromagnetic interference. The operation steps are as follows:

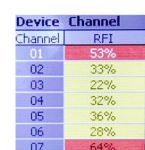
- Step-A** Disconnect the stereo synchronization signal: Disconnect the stereo synchronization cable or temporarily stop the computer stereo synchronization output.
- Step-B** Enter the settings page: Config->Setting
- Step-C** Search for interference level: Channel->Search
- Step-D** Wait for the retrieval process to end



Step-B



Step-C



Step-D

② Set up RF working channels

Step-A Press the right key continuously (►) until entering the channel list.

Step-B Use the up arrow (▲) or down arrow (▼) to select the working channel with low interference. For example, in the schematic diagram, channel 13 is selected.

Step-C Press the "Enter" key to confirm the working channel.

Step-D Press the "Enter" key again to confirm.

Device	Channel
Channel	RFI
01	53%
02	33%
03	22%
04	32%
05	36%
06	28%
07	64%

Step-A

Device	Channel
Channel	RFI
09	16%
10	14%
11	0%
12	0%
13	0%
14	3%
15	2%

Step-B

Device	Channel
Channel	RFI
0	MESSAGE
1	Set to 13
2	OK
3	1%
14	3%
15	2%

Step-C

③ Customized RF glasses working channel

In theory, RF-100P RF stereo emitter ave 125 channels for users to choose from, but due to interface constraints, only 16 channels can be displayed simultaneously on the display screen. The 16th channel is used as a custom work channel for users to set, with a channel number range of 16-125. The customization process is as follows:

Step-A Enter the menu: Channel ->Custom

Step-B Press the "Enter" key to enter the settings interface.

Step-C Use the left (◀) or right (▶) keys to select column positions, and use the up (▲) or down (▼) keys to set the channel number.

Step-D Press the "Enter" key to confirm.

Device	Channel
Channel	Search
09	Custom
10	Close
11	
12	0%
13	0%
14	3%
15	2%

Step-A

Device	Channel
Channel	RFI
0	Custom Channel
1	0
2	2
3	8
14	3%
15	2%

Step-C

④ Manage RF glasses

When the RF stereo glasses are paired with the RF stereo emitter for the first time or the working channel of the RF stereo transmitter changes, a new working channel needs to be registered for the RF stereo glasses. The operation steps are as follows:

Connect the RF glasses to the "Com For Glasses" communication interface on the front panel of the transmitter through a USB data cable (refer to the figure on the right). Select "Add" on the main page and press the "Enter" button to confirm the addition. If added successfully, the glasses lens and indicator light will flash, and the "Total Num" information on the main page will be updated. The same pair of glasses can only be added once, and repeated additions are invalid.



⑤ Set frame delay

Frame delay is mainly used to control the isolation degree of stereo left/right eye images.

The steps to set frame delay are as follows:

Step-A Select menu: Configuration ->FrameDly

Step-B Press the "Enter" key to pop up the frame delay editing dialog box.

Step-C Set the frame delay through the directional keys, and the frame delay will take effect immediately.

Add	Config	Help
CHA	Reverse	13
TOTA	Setting...	3
	FrameDly	
	SYNC SIGNAL	
	REVERSE	SIG
	FRAME RATE	ERRHZ

Step-A

Add	Config	Help
CHANNEL:	framedelay	13
TO:	+	3
	0	
	8	
	0	
	0	
	unit:us	
	REVERSE	SIG
	FRAME RATE	120HZ
	ERRHZ	

Step-C

⑥ Switch left/right eye timing

There are two methods to switch between left/right eye timing:

1. Switch by manually pressing the "Reverse" button on the rear panel.
2. Switch by displaying the management screen menu.

Step-A After entering the menu: Configure ->Reverse, press the "Enter" key to switch.

Step-B After switching between, the main page switching information will be automatically updated.

Add	Config	Help
CHA	Reverse	13
TOTA	Setting...	3
	FrameDly	
	SYNC SIGNAL	
	REVERSE	SIG
	FRAME RATE	ERRHZ

Step-A

Add	Config	Help
CHANNEL:		13
TOTAL NUM:		3
	SYNC SIGNAL	
	REVERSE	SIG
	FRAME RATE	120HZ
	ERRHZ	

Step-B

ST-201PRO RF Stereoscopic Glasses

Command Operation Guide

ST-201PRO RF stereoscopic glasses support users to set up the glasses through a serial port (USB to serial port). The functions set include:

- Viewer setting (only valid for 240Hz version of stereo glasses)
- Set the working channel number for stereo glasses

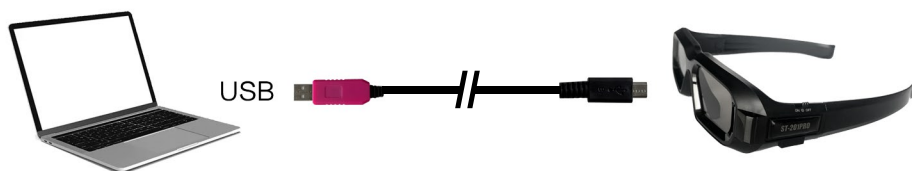
The operation steps for setting ST-201PRO RF stereoscopic glasses with instructions are as follows:

1 Prepare serial communication tools

The user needs a serial communication tool (RBDVsCom.exe) customized by RBD to set up the stereoscopic glasses. The download address for the serial communication tool is: <http://www.rbd-visual.com/files/RBDVsCom.zip>. The downloaded installation package includes a USB to serial port driver and the serial communication tool.

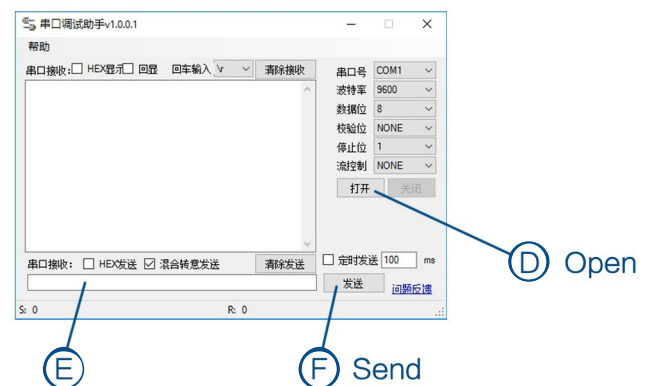
2 Connect stereo glasses and computer

Connect the customized USB cable provided by RBD to the computer and ST-201PRO RF stereoscopic glasses. After connecting the cable, the stereo glasses will automatically turn on (users do not need to manually turn on the stereo glasses).



3 Run serial communication tool

- Run serial communication tool: RBDVeCom.exe
- Set the correct serial port number (e.g. COM4)
- Set the baud rate to 9600
- Click the 'Open' button to connect to the serial port
- Enter instructions in the command input line
- Click the 'Send' button



4 Instruction List

Command	Functional Description	Precautions
setviewer 0\r	Set the RF stereoscopic glasses to viewer A mode	Only the 240Hz version of stereoscopic glasses is supported
setviewer 1\r	Set the RF stereoscopic glasses to viewer B mode	Only the 240Hz version of stereoscopic glasses is supported
getviewer \r	Read the current viewpoint mode of RF stereoscopic glasses	Only the 240Hz version of stereoscopic glasses is supported
chgchl 13\r	Set up the working channel for RF stereoscopic glasses	The '13' in the command refers to channel 13

RF-100P RF Stereoscopic Emitter

Command Operation Guide

The RF-100P RF stereo emitter supports users to set up the emitter through serial port or network.

1 Serial Instructions (only valid for 240Hz version emitter)

Command	Functional Description
double viewer 1\r	Set the emitter to operate in dual view (240Hz) mode
double viewer 0\r	Set the emitter to operate in single view (120Hz) mode

If users have a real-time purpose to switch the working mode of the stereo emitter in the application (such as switching from dual viewer mode to passive stereo (dual input) mode with higher rendering performance in graphic clusters), please send the above serial port commands through centralized control software such as RBDGFXClusterManager, Crestron, AMX, etc. Otherwise, please use the serial communication tool (RBDVeCom.exe) to send the commands. The download address for the serial communication tool is: <http://www.rbd-visual.com/files/RBDVeCom.zip>

2 Network Instructions

1、Default network configuration for RF-100P RF stereo emitter:

■ IP: 192.168.2.88 ■ Gateway: 192.168.2.2 ■ Mask: 255.255.255.0 ■ DNS: 210.22.70.3
■ DHCP: OFF ■ Default UDP communication port: 5000

2、Network command list (where 'r' in the following commands indicates that the command ends with a carriage return, this writing style needs to be supported by the control software or network command debugging tool)

Command	Functional Description	Precautions
reset\r	Restart the emitter	N/A
search\r	Interference values of 16 channels in the search panel	The interference value is for reference only. A high interference value indicates a high frequency of other devices using the channel during the detection period
search 0\r	Interference values for 125 channels in the search panel	The interference value is for reference only. A high interference value indicates a high frequency of other devices using the channel during the detection period
search x\r	Search for specified channel interference values	The range of channel values is 1~125, and "x" represents the specified channel
set channel x\r	Set the working channel of the emitter	'x' is the designated channel
set reverse\r	Switch between left and right eyes	N/A
set framedly x\r	Set frame delay (in milliseconds)	This instruction is valid in the presence of a synchronization signal. "x" is the delay value, which can be positive or negative and must be less than one cycle
set ip x\r	Set IP address	'x' is the IP address, which will take effect after restarting
set mac x\r	Set MAC address	'x' is the MAC address, which will take effect after restarting
set gateway x\r	Set gateway address	The 'x' is the GATEWAY address, which will take effect after restarting
set dns x\r	Set DNS address	'x' is the DNS address, which will take effect after restarting
set mask x\r	Set subnet mask address	'x' is the subnet mask address, which will take effect after restarting
get channel\r	Obtain the working channel of the emitter	'x' is the designated channel
get reverse\r	Obtain the left/right eye switching status	N/A
get framedly\r	Obtain frame delay value	This instruction is valid in the presence of a synchronization signal
get ip\r	Obtain IP address	N/A
get mac\r	Obtain MAC address	N/A
get gateway\r	Obtain gateway address	N/A
get dns\r	Obtain DNS address	N/A
get mask\r	Obtain subnet mask address	N/A