

IP KVM Matrix Extender

User Manual

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User Information

Telephone Support

For telephone support, please call below number:

| | |
|--------|-------------------|
| TEL | 0086-755-26755041 |
| MOBILE | 0086-13714411566 |

User Notification

All information, documentation, and specifications contained in this manual are subject to change without prior notice. The manufacturer does not make any explicit or implied statement or guarantee about the contents of this document, especially for merchantability or fitness for any specific purpose. Any manufacturer's equipment described in this manual is sold or licensed as it is.

If the equipment is damaged artificially after purchase, the buyer (not the manufacturer, its distributor or reseller) shall bear all costs for necessary repair and any losses caused by equipment defects.

If the correct operating voltage setting is not selected before operation, the manufacturer will not be responsible for any damage caused by system operation.

Please make sure the voltage has been set correctly before use.

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1. Introduction

The KFH151S IP KVM matrix extenders are highly optimized KVM extenders. The point-to-point connection supports transmission distance of 120m, and resolution up to 3840x2160@30Hz. This series of extenders can be connected to an 1G network switch to form a matrix switching system, which supports point-to-point (P2P) mode and matrix (Matrix) mode. The matrix switching system composed of extenders supports up to 9999 nodes by using a centralized management software, and it can support up to 40 nodes without using a centralized management software. It can connect multiple signal sources (such as servers, workstations, cameras and video walls).

With the matrix switching system, computers and servers can be located in the central server room far from the workstation to improve security, reduce the temperature and noise of the working environment, and achieve a quiet and friendly human-computer interaction environment.

The video compression algorithm of KFH151S matrix extender is a perfect combination of high-quality image and low latency (<16ms). The USB and video signals are transmitted through CAT5e/6/7 network cable.

It supports USB devices such as touch screen, USB sound card, printer, etc., it can also support USB storage devices.

1.1 Function

This product is intended to be used as a device to increase the distance that a keyboard, monitor and mouse can be placed from a computer. This product is intended for professional use. The product should not be used in potentially explosive environments.

The product may only be used according to the instructions as described in this manual. All use, other than that described in this manual, is seen as unintended use. In this product, the product connected to the host end is called the transmitter (TX), and the product connected to the display end is called the receiver (RX).

1.2 Feature

- HDMI / USB2.0/Audio/Rs232 - IP KVM Matrix Extender
- Single and Dual screen version
- Point-to-point connection supports maximum extension distance 120m/394ft
- Can be connected to a standard network switch to form a matrix switching system
- Support seamless switching
- Freeze the last image after the disconnection of transmitter and receiver
- Support resolution up to 3840x2160@30Hz
- USB transmission rate up to 12MB/s
- HDMI lossless real-time full HD transmission
- Support local (TX) HDMI interface loop-out
- Support transmission through fiber optic and network (CAT5e/6/7)
- Support one Administrator account and one User account

1.3 Safety Instructions

WARNING! Read and understand all safety instructions.

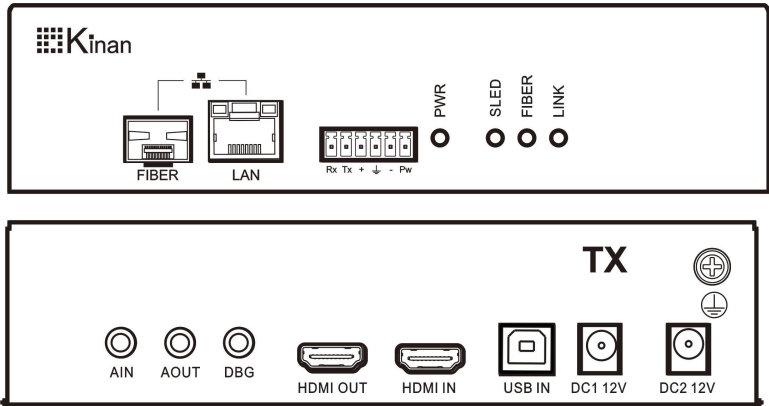
- Please follow all instructions. This will avoid accidents, fire, explosions, electric shocks or other hazards that may result in damage to property and/or severe or fatal injuries. Please ensure that everyone who uses the product has read and followed these warnings
- Keep all safety information and instructions for future reference and pass them on to subsequent users of the product.
- The manufacturer is not liable for cases of material damage or personal injury caused by incorrect handling or non-compliance with the safety instructions. In


such cases, the warranty will be voided.

- The product is not allowed to use in potentially explosive environments.
- Check the product and the cables for any damage before use. If there is any visible damage, a strong odour, or excessive overheating of components unplug all the connections immediately and stop using the product.
- If the product is not installed and used in accordance with this manual, it may cause disruptive interference with radio or television reception or affect other electronic products in residential areas.
- Use shielded cables to connect components to avoid the above interference.
- Only the power adapter included with the product should be used as the power supply. Do not use other adapters.
- Make sure your local voltage matches the rating indicated on the product before powering on it.
- The product must be connected to a permanent and earthed AC wall socket.
- Protect cables from being strained, pinched or buckled and place them in a way to prevent people from tripping over the cord.
- Avoid any damage to power adapter.
- Use the product with a suitable, properly installed and easily accessible power socket to make sure the product can be disconnected from the power socket at all times.
- Disconnect the product when not in use.
- Never touch the adapter with wet hands.
- Use the product within the specified performance limits.
- Keep the product away from any flammable materials like curtains.
- Protect the power adapter from use by third parties (particularly children).
- Keep the product away from heater.
- Do not drop or hit the product.

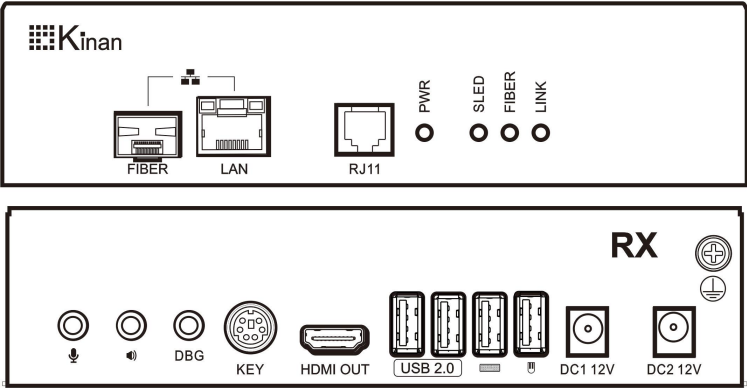
1.4 Product Overview






KFH151S sender (TX)



| No. | Components | | Description |
|-----|---|-------|---------------------------------|
| 1 | FIBER | | Fiber interface |
| 2 | LAN | | LAN interface |
| 3 | Rx Tx + ↓ - Pw | | Serial Port |
| 4 | LED | PWR | Power indicator |
| | | SLED | System indicator |
| | | FIBER | Connection indicator of FIBER |
| | | LINK | Connection indicator |
| 5 | AIN | | Audio input |
| 6 | AOUT | | MIC output |
| 7 | DBG | | Debug interface |
| 8 | HDMI OUT | | HDMI video loop out |
| 9 | HDMI IN | | HDMI video input |
| 10 | USB IN | | USB-B, connect to PC or server |
| 11 | DC1, DC2 | | Connect to the 12V power supply |
| 12 |  | | Ground the device |

KFH151S receiver (RX)



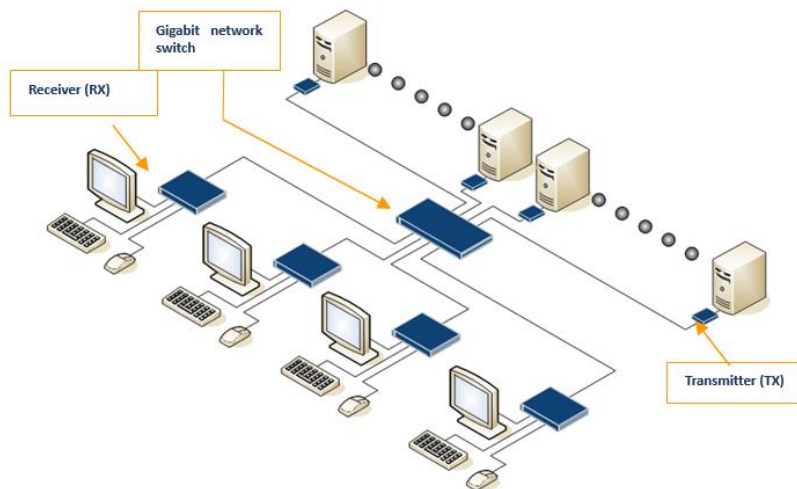
| No. | Components | | Description |
|-----|---|-------|---------------------------------|
| 1 | FIBER | | Connection indicator |
| 2 | LAN | | Power indicator |
| 3 | RJ11 | | Serial Port |
| 4 | LED | PWR | Power indicator |
| | | SLED | System indicator |
| | | FIBER | Connection indicator of FIBER |
| | | LINK | Connection indicator |
| 5 |  | | MIC input |
| 6 |  | | Audio output |
| 7 | DBG | | Debug interface |
| 8 | KEY | | Reserved interfaces |
| 9 | HDMI OUT | | HDMI video output |
| 10 | USB2.0 | | Connect to USB2.0 peripherals |
| 11 |  | | Connect to a USB keyboard |
| 12 |  | | Connect to a USB mouse |
| 13 | DC1, DC2 | | Connect to the 12V power supply |
| 14 |  | | Ground the device |

2. Installation

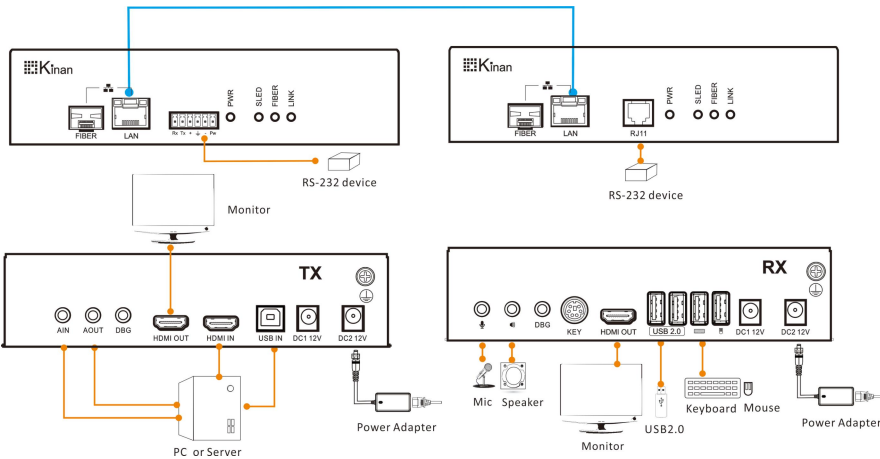
2.1 Installation of Extender

Warning! Please read and be aware of all safety instructions before installing the equipment. The extender can be set as a point-and-point mode to access a single PC, and also can access multiple PCs through matrix switching system.

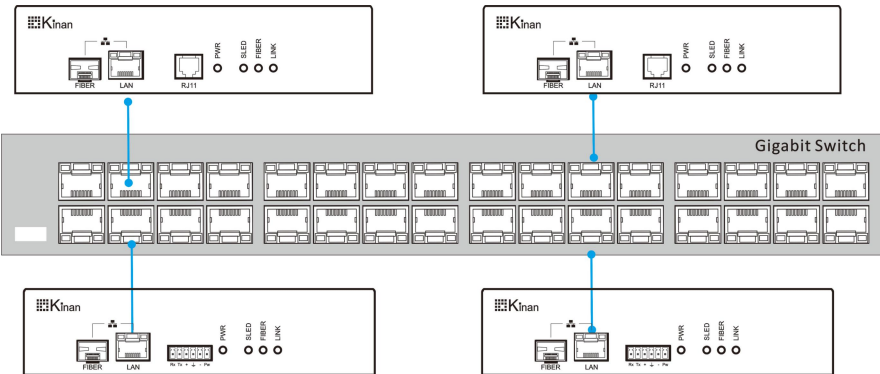
Matrix switching system



Connection Diagram of KFH151S



Matrix Connection Diagram









Configuration requirements: The electrical port of the network switch must reach a gigabit rate and support IGMP multicast.

3. Extender Configuration

3.1 Use of UI Interface

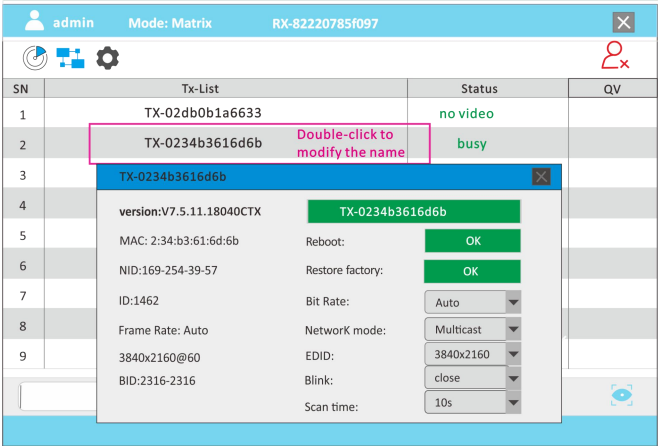
Press the left [Ctrl] key on the keyboard 3 times continuously, then the main UI interface will display.

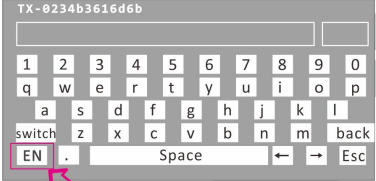
| <div> <div>admin</div> <div>Mode: Matrix</div> <div>RX-82220785f097</div> <div></div> </div> | | | |
|--|-----------------|----------|----|
| <div> <div> <div></div> <div></div> <div></div> </div> <div></div> </div> | | | |
| SN | Tx-List | Status | QV |
| 1 | TX-02db0b1a6633 | no video | |
| 2 | TX-0234b3616d6b | busy | |
| 3 | TX-02da799ae375 | --busy-- | |
| 4 | TX-02bf64e94952 | connect | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| <div> <div></div> <div></div> <div>Total TX:4</div> <div></div> </div> | | | |

| Function Name | Description |
|---|--|
| Mode | Node Matrix P2P |
|  | Scan device list |
|  | The list of matched transmitter and receiver |
|  | Setting of function key |
|  | Click 【Equipment setting】 - 【User Setting Pass】 to logout user account |
| SN | Number of connected devices |
| TX_List | List of transmitters |
| Status | Busy: TX and RX are paired --Busy-- : The RX has been connected to a TX No video: There is no video input from the host Connect: Can be connected |
| QV | Select Scan device |
|  | Find the devices in the list |
|  | Auto Scan |


[Name Setting of TX_List]


Double-click the name of a TX, and then the following name setting window appears.



| Function Name | Description |
|-------------------------|--|
| Modify the name of a TX | <p>Click “TX-0234b3616d6b ” to modify the TX name and then click “ESC” button to confirm your modification.</p>  <p>EN: English Version CN: Chinese Version</p> |
| Reboot | Reboot the device |
| Restore factory | Restore Factory Defaults |
| Bit Rate | Auto, 10M ,50M, 100M, 150M, 200M |
| Network mode | Multicast mode Unicast mode |
| EDID | AUTO, 1024x768, 1280x1024, 1366x768,1600x900, 1920x1080,1920x1200,3840x2160 |
| Blink | To set PWR flashing time, check TX connection status. You can choose from “Close, 1 min, 10 min, 30 min, 60 min, always”. |
| Scan time | 10s, 20s, 30s, 60s, 90s ,120s, 150s, 180s, 210s, 255s |


[Auto Scan Setting]




Select TX devices, click the QV item, and then click “” to automatically scan the selected device (default scan time: 10s).


 admin

Mode: Matrix


RX-82220785f097










| SN | Tx-List | Status | QV |
|----|-----------------|----------|------|
| 1 | TX-02db0b1a6633 | no video | Scan |
| 2 | TX-0234b3616d6b | busy | Scan |
| 3 | TX-02da799ae375 | --busy-- | Scan |
| 4 | TX-02bf64e94952 | connect | Scan |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |

 Total TX:4



Scan time: 10s, 20s, 30s, 60s, 90s, 120s, 150s, 180s, 210s, 255s

[User Login Interface]

The default setting mode is “password mode: ” (See User Setting on Page 16), the login interface will only appear after clicking the icon .


UserName:


Password:


login

| | |
|------------|-------|
| User Name: | admin |
| Password: | admin |

[The list of matched TX/RX]

Click function key , and then the following menu appears:


 admin Mode: Matrix RX-82220785f097




| TX | RX |
|-----------------|-----------------|
| TX-02db0b1a6633 | RX-826d9539bf91 |
| TX-0234b3616d6b | |
| TX-02da799ae375 | RX-82220785f097 |
| TX-02bf64e94952 | RX-82bcf4d41966 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

When you see the device name in the TX list and the RX list, that means that the TX and RX are matched successfully.


3.2 Function Setting

Click the function key [], and then below menu appears:

 admin


Mode: Matrix


RX-82220785f097





Operating mode: Matrix

system state:

 Usb

 Audio

 KM

 Share

Output timing: 1080p@60

Total TX: 4 Total RX:2

MAC: 82:22:7:85:f0:97

MID: 169-254-39-57

BID: 000000000000-0

Version: V7.5.11.18040ERD

Equipment info

Equipment setting

Frame push


Frame Get

Update

Hotkeys


| Function Name | Description |
|-------------------|---|
| Equipment Info | To switch on/off USB, Audio, KM, Get & Push |
| Equipment Setting | System and User Settings |
| Frame Push | Push the video and USB signals from current receiver to the chosen receiver in the list |
| Frame Get | Get the video and USB signals from any receiver in the list to the current receiver |
| Upgrade | Update device |
| Hotkey | Hotkeys of device |

[Equipment Setting]

 admin

Matrix

RX-82220785f097



system Setting:

RX-82220785f097

System mode:

Matrix

Output timing:

1080p@60

NetworkK mode:

Multicast

Reboot:

OK

Edid sync:

1920x1080

Restore factory:

OK

All Blink:

close

password mode:

☐

Equipment info

Equipment setting

Frame push



Frame Get

Update


Hotkeys

| Function Name | Description |
|-----------------|--|
| RX-8220785f097 | Click to change the name of RX, and then click “ESC” button to confirm your modification. |
| Output timing | Resolution 1080P@60, 1080P@50, 2160@30, 2160@25, 720P@60, 1366x768, 1440x900, 1920x1200, 1400x1050, AUTO PASS |
| Reboot | Reboot device |
| Restore factory | Restore factory defaults |
| System mode | Matrix mode P2P mode Node mode |
| Network mode | Multicast mode Unicast mode |
| Edid Sync | AUTO, 1024x768, 1280x1024, 1366x768, 1600x900, 1920x1080, 1920x1200, 2560x1440, 3840x2160 |
| All Blink | To set PWR flashing time You can choose from “Close, 1 min, 10 min, 30 min, 60 min, always”. |
| Password mode | Modify user name and set permissions |

User Setting:


Click “”, swipe right to “”, and then the following menu appears. You can modify user password and set permissions.

You can't set the user name and password in Node mode, they can be set on the management control unit.

 admin

Matrix

RX-82220785f097



system Setting:

RX-82220785f097

System mode:

Matrix

Output timing:

1080p@60

NetworkK mode:

Multicast

Reboot:

OK

Edid sync:

1920x1080


Restore factory:








OK

All Blink:

close

password mode:



| Name | Password | Permissions | | |
|-------|----------|---|---|--|
| admin | admin |  Usb |  Audio |  KM |
| | |  share | | |
| user | user |  Usb |  Audio |  KM |
| | | <input type="checkbox"/> Share | | |

Equipment info

Equipment setting

Frame push




Frame Get

Update

Hotkeys




| Function Name | Description |
|---------------|--|
| Password | Double click the name in the password list to modify the password of corresponding user. |
| Permissions | Set permissions for USB, Audio, KM, Frame Get, and Frame Push. |

[Frame Push]

| adminMatrixRX-82220785f097 | | | | | |
|----------------------------|---|-----------------|------|-------------------|--|
| SN | Rx-List | | Push | | |
| 1 |  | RX-826d9539bf91 | Push | Equipment info | |
| 2 |  | RX-824970a75774 | Push | Equipment setting | |
| 3 |  | RX-82bcf4d41966 | Push | Frame push | |
| 4 | | | | Frame Get | |
| 5 | | | | Update | |
| 6 | | | | Hotkeys | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |

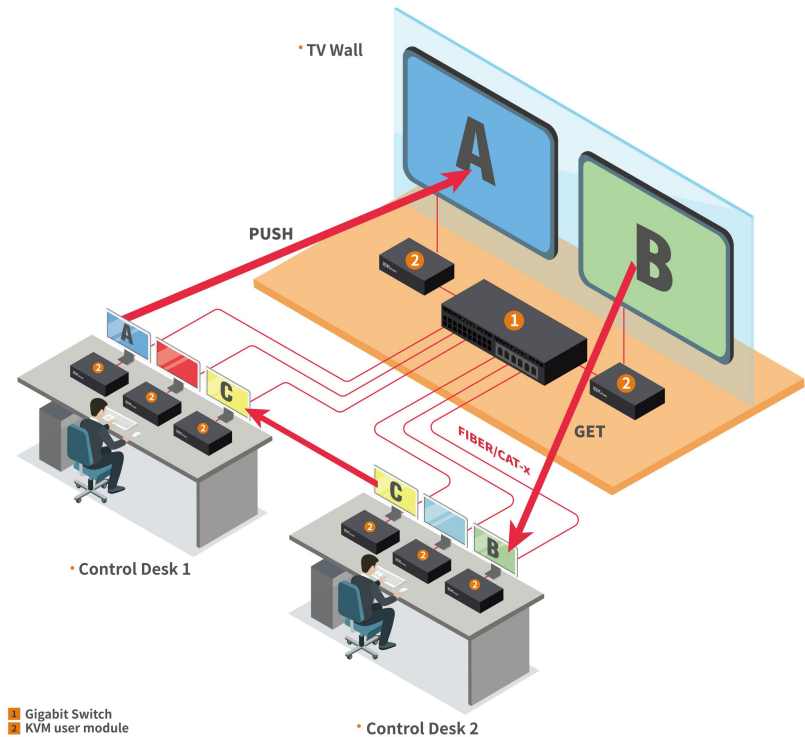
Click [Push] to push the video and USB signals from current receiver to the chosen receiver in the list.

[Frame Get]

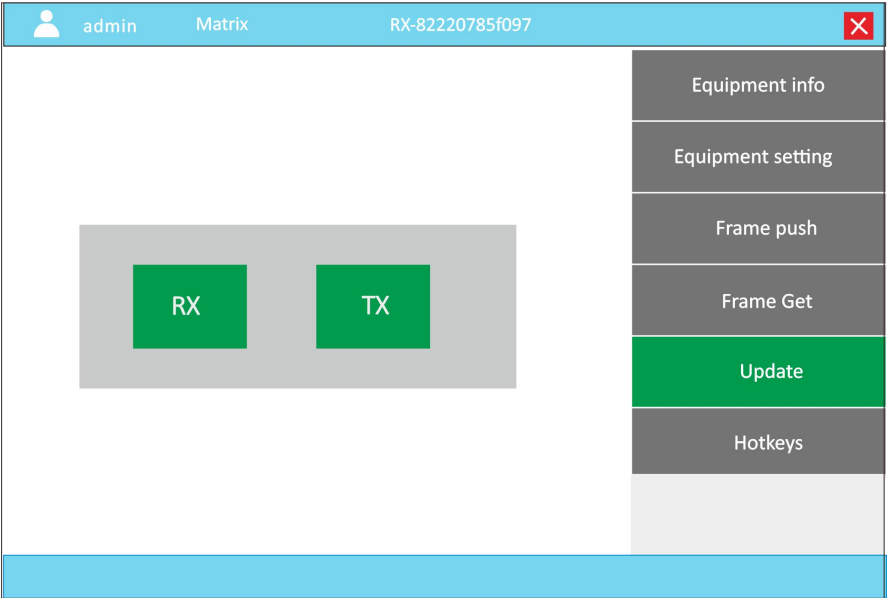
| adminMatrixRX-82220785f097 | | | | | |
|----------------------------|--|-----------------|-----|-------------------|--|
| SN | Rx-List | | Get | | |
| 1 |  | RX-826d9539bf91 | Get | Equipment info | |
| 2 |  | RX-824970a75774 | Get | Equipment setting | |
| 3 |  | RX-82bcf4d41966 | Get | Frame push | |
| 4 | | | | Frame Get | |
| 5 | | | | Update | |
| 6 | | | | Hotkeys | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |

Click [Get] to get the video and USB signals from any receiver in the list to the current receiver.

Connection Diagram of Collaborative Sharing Push & Get





[Update]



Click 【RX】 to update RX
Click 【TX】 to update TX

[Hotkeys]

 admin Matrix RX-82220785f097 

Press the hotkey 3 time quickly

left Ctrl ----> Shows or Hides the UI

left Shift ----> Disconnect host

right Ctrl ----> Next or previous channels

Switch hotkey

hold down right Ctrl+ double -click1-0 --> Switch from channel 1 to10

Equipment info

Equipment setting

Frame push

Frame Get

Update

Hotkeys

| Function Name | Description |
|-------------------------|-----------------------------|
| Left_Ctrl | Shows or Hides the UI |
| Left_Shift | Disconnect host |
| Right_Ctrl | Next or previous channels |
| Right_Ctrl+Doulbe 【1-0】 | Switch from channel 1 to 10 |

4. Specifications

Specifications of KFH151S

| Specifications | | KFH151S_TX | KFH151S_RX |
|-------------------------------|----------------|----------------------------------|---------------------------|
| Connections | HDMI input | 1 | N/A |
| | HDMI output | 1 | 1 |
| | Power | 12V | 12V |
| | LAN port | RJ45 x 1 | RJ45 x 1 |
| | Optical Module | SFP x 1 | SFP x 1 |
| | Mic | 3.5MM Stereo Jack (Green) | 3.5MM Stereo Jack (Pink) |
| | Speaker | 3.5MM Stereo Jack (Pink) | 3.5MM Stereo Jack (Green) |
| | Square USB | 1 | N/A |
| | USB | N/A | 4 |
| Resolution | | 3840x2160@30Hz | |
| Cable | | CAT5e/6/7 or Optical Fiber Cable | |
| I/R Value | | DC12V / 3A | DC12V / 3A |
| Power consumption | | 6W | 6W |
| Operating temperature | | 0—50 ℃ | |
| Storage temperature | | -20—60 ℃ | |
| Humidity | | 0—80% RH, non-condensing | |
| Material | | Metal | |
| Net weight(kg) | | 0.7 kg | 0.7kg |
| Product dimension (W × D × H) | | 180mm x 123.5 mm x 44mm | |
| Package dimension (W × D × H) | | 243mmx 209mm x 98mm | 243mmx 209mm x 98mm |