

# **HDMI Over Power Line**

## **User Manual**

### **Version 1.5**

**For the following models**  
**HDMI-PLC-2(TX),HDMI-PLC-2(RX)**



Powered by **HDMI**<sup>™</sup> Technology  
HIGH-DEFINITION MULTIMEDIA INTERFACE

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## **SAFETY WARNINGS**

These safety warnings are provided to ensure the best user experience with the least inconvenience. Please read this user manual completely before installation and operation. It is advised that you keep the original packaging and protective material in case you need to safely transport the equipment in the future (e.g. for repair).

Maintain at least 2 cm around these devices during operation to ensure heat is properly dissipated; this will maintain and prolong the life of the product.

### **【WARNING】**

- Do not use these devices outdoors or in environments where the devices can be exposed to water and moisture (e.g. bathtubs, basins, water tanks, wet basements, swimming pools etc.). This warning is to prevent fire and electrical shock



- To further prevent electrical shock, do not, in any circumstance, open the cases. Only trained technicians are certified to repair these devices. If your device needs repair, please contact your dealer.
- Do not place containers holding liquid (e.g. flower vases, coffee mugs etc.) or material soaked with moisture (e.g. paper, cloth etc.) on the top of or in the vicinity of this product. Always leave 2 cm of open space around the periphery of the case and on top of the case.
- Do not block the air vents on the cases. Also, do not place this device on soft surfaces (e.g. sofas) where the product might sink into the surface. Also, do not place devices on carpets or rugs where the surrounding material can affect ventilation and heat dissipation.
- Do not place these devices on any surface that generates heat such as radiators, electric heaters, fire places etc.

### **【SAFETY INSTRUCTION】**

- Read this manual for all safety measures about operations before using this product.
- Always keep this manual accessible for reference.
- Pay close attention to all warnings and follow all the safety instructions.
- Only operate these devices in well ventilated areas (i. e. do not place in closets, cupboards, covered boxes etc.).

- Only use a dry cloth to wipe down the case. Do not use liquid cleaners or spray cleaners.
- Do not place the devices in areas that are confined in a limited space (e.g. in the middle of a crowded bookshelf).

### **【ABOUT the POWER SUPPLY】**

- If you do not expect to use the product for an extended period of time, unplug the device from the power socket. This is a precautionary measure because these products, as long as they are connected to a power socket, will maintain an electrical current even though they are “turned off” (i.e. using the power button). Unplug the power cable from the power socket by pulling from the plug; do not pull on the cable line.
- Power Cable Precautions
  - Do not wedge or clamp the power line between the case and surrounding items (e.g. walls, furniture, closets etc.).
  - Do not place things on the power line or drag anything over it.
  - If the power line is damaged, replace it immediately to prevent electrical shock and fire.

### **【ABOUT the HDMI CONNECTOR】**

- Improper use of the HDMI socket and connector will cause damage.
  - Before plugging in the HDMI cable into the HDMI socket, carefully check the orientation and shape of the ends of the socket and connector to make sure you are not inserting the connector upside down. Plug the cable in carefully, making sure the head of the connector aims straight into the socket, without any tilt.
  - Remove the HDMI cables whenever you move or transport these devices.
  - Hold the HDMI cable line when you plug or unplug the HDMI cable. Do not twist or force the plug into the connector.

### **【ABOUT REPAIR】**

- These devices should be disposed of properly according to national, regional recycling regulations.

- Components that are consumptive in nature (e.g. battery ) are not included in the warranty and will incur a fee when replaced.

**【ABOUT ABNORMAL OPERATIONS】**

- If any smoke or odors emanate from these devices, turn off the device immediately, unplug the power cable from the socket and contact your dealer; if you continue to utilize this product in these conditions, it may cause a fire or damage the product irreparably. Unauthorized repair by uncertified repair facilities is forbidden.
- If the device is accidentally exposed to water or the case is damaged in any way, turn off the power switch and unplug the power cable. Failure to do so may result in electrical short and fire. If you are uncertain of your situation, please call your dealer immediately.
- It will take 30 to 40 seconds to establish a connection between the transmitter and receiver. If there is no video or audio transmitting to the receiver, please refer to the trouble shooting section of this manual. Contact your dealer if you are unable to resolve your problem.

# 1. Introduction

The HDMI Over Powerline Transmitter and Receiver incorporate HDMI™ technology, allowing you to transmit HD Video anywhere in your home using existing Power lines. This avoids the complexities of rewiring your house or buying new Video Equipment (e.g. Video Players) for each viewing room. This system consists of a receiver and a transmitter that deliver H.264 HD video and high quality audio from Blu-ray™ players, Set-Top boxes, and video game consoles (etc.) to compatible HDTV displays located near power outlets. Setup is fast and easy; the Video Player (e.g. Blu-Ray player) is connected to your Transmitter while your HDTV is connected to the Receiver; both Receiver and Transmitter are connected to Power Outlets. HDMI Over Power Line also allows you to use IR Remote Controllers to control A/V equipment (stop/start/FF/Rewind etc.) remotely using IR signals.

## HDMI Over Power Line Kit Contents

The HDMI Over Powerline kit contains the equipment below. If any components are missing or damaged, contact your dealer immediately.

### Package Contents

- A. HDMI Over Power Line Transmitter
- B. HDMI Over Power Line Receiver
- C. IR Blaster cable
- D. Remote Control
- E. HDMI Cable (x2)



In addition to the kit, a video player (DVD player, Blu-Ray player etc.) and a TV (HDTV or Standard TV) are needed.

**Note 1:** “TX” and “RX” may be substituted for “Transmitter” and “Receiver” (respectively) throughout this manual.

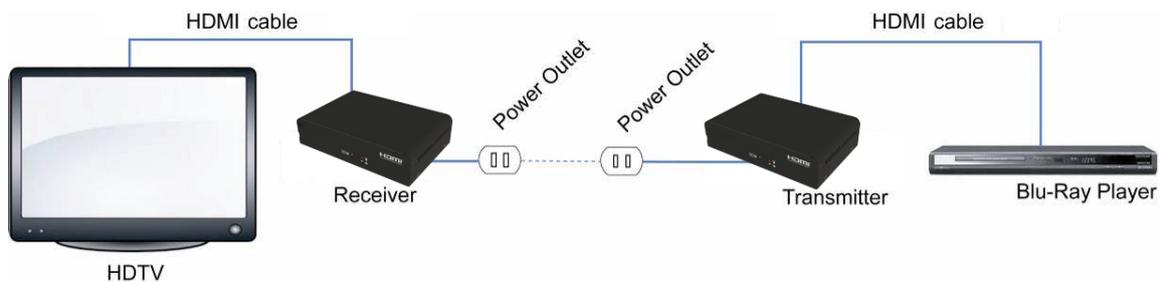
**Note 2:** Power Plug specifications will vary, depending on country or region.

## 2. Quick Setup Guide

This chapter describes how to get your HDMI Over Power Line environment quickly installed. After the setup, you will be able to view video that is streaming from a video player on one power outlet to a TV on another power outlet anywhere in your home. For this setup you will also need:

- TV (HDTV) with an HDMI connector
- Video player (e.g. Blu-Ray player, DVD player) with an HDMI connector
- Two available power outlets

This guide will use an HDTV and a Blu-Ray player as the video equipment in the examples.



### Step 1: Connect the Blu-Ray Player to the Transmitter

Connect your Blu-Ray player to the back panel of the HDMI Over Power Line Transmitter by using an HDMI cable.



### Step 2: Connect the HDTV set to the Receiver

Connect your HDMI Over Power Line receiver to the HDTV by using another HDMI cable.



### Step 3: Power on TV set and Blu-Ray Disc player

Power on your TV set and Blu-Ray Player in any order. Place a Blu-Ray video disc into the player.

**Step 4: Connect the Power Cords to Power outlets**

Connect the other end of the TX power cable to an outlet with the appropriate voltage. Also connect the other end of the RX power cable to an outlet.

**Step 5: Turn on power switches**

Turn on the Power Switches on the rear panels of both RX and TX. Wait for about 10 seconds.

A red Power Indicator light will illuminate on the front panel of both the Transmitter and Receiver. Meanwhile, at the TV, you may see a couple of messages display on the TV screen (depending on boot up sequence of equipment). These include a “Welcome” message or “Waiting for TX to be ready” message.

After booting all of your equipment (TV, Blu-Ray, TX and RX), the video transmission from the source Blu-Ray player should begin to display within 40 seconds.



## **3. Troubleshooting**

If no video displays on the remote TV attached to your RX, proceed with the steps below:

### **Step 1: Check connections, power and equipment**

- Make sure all power connections are secure and power is supplied to all equipment.
- Inspect all cables and cable connections between Player-TX and TV-RX.
- Make sure the Video Player is working properly and is transmitting video (hook up a TV directly to the player to confirm). Also, make sure the TV that is attached to the TX is in working order.

If video still does not display, go to Step 2.

### Step 2: Pairing procedures for troubleshooting

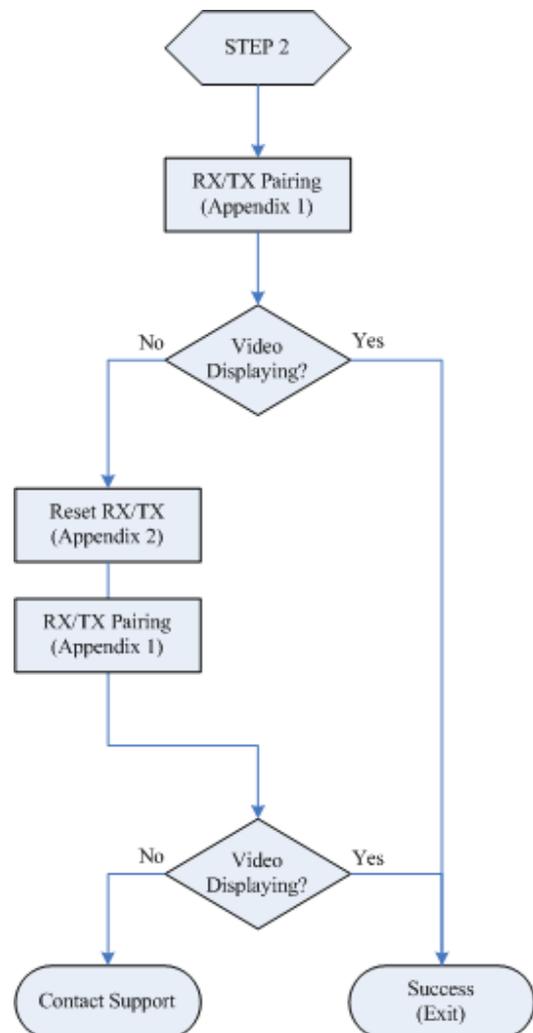
“Pairing” refers to the process where two independent systems (i.e. RX and TX) identify themselves and establish/re-establish the link over the powerline or Ethernet network. You can use these procedures when troubleshooting your system (i.e. Video fails to appear on TV connected to the RX).

The flowchart to the right will instruct you on how to proceed in order. The “Video displaying?” diamond refers to video can be displayed on the TV attached to the RX. The procedures in the boxes are explained in the Appendices as listed below:

- **Appendix 1:** RX/TX Pairing
- **Appendix 2:** Reset RX/TX to System Defaults

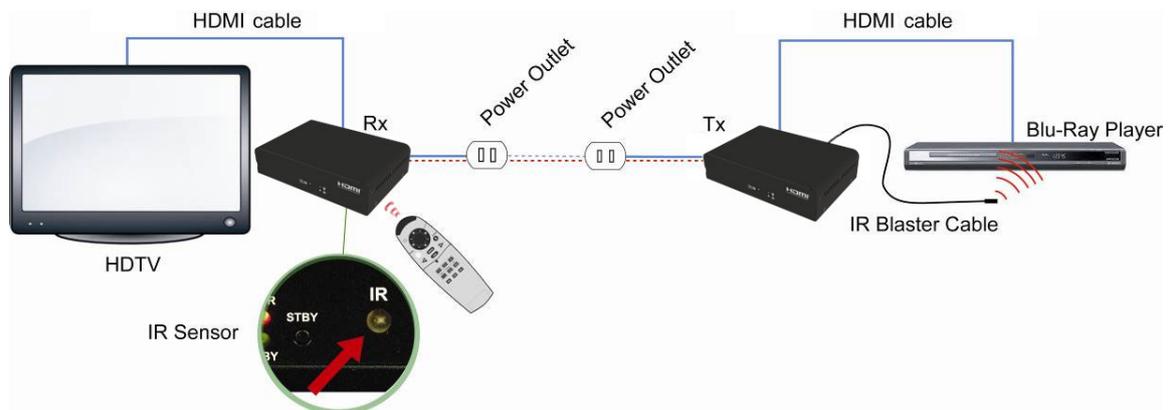
It is assumed that RX, TX and video equipment are all properly connected and powered on.

**Note:** It is highly recommended that you perform these procedures with the RX and TX in the same vicinity, preferably attached to the same power outlet.



## 4. Video Source Remote Control

With the HDMI Over Power Line system, you can control your video player from the remote location (i.e. where RX is located) using the Video Player's remote controller (must be Infrared Remote Controller). The RX is fitted with an IR sensor that receives the signals and sends them over the power lines to the TX, where the TX re-emits the same IR signals to the video player.



### Step 1: Attach IR Blaster Cable to TX

Connect the IR Blaster Cable to the back of the Transmitter.



### Step 2: Place IR Blaster Tab

Situate the IR Blaster tab in front of the Video Player IR sensor or use the double sided sticker on the tab and stick it onto the Video Player, near the IR sensor.



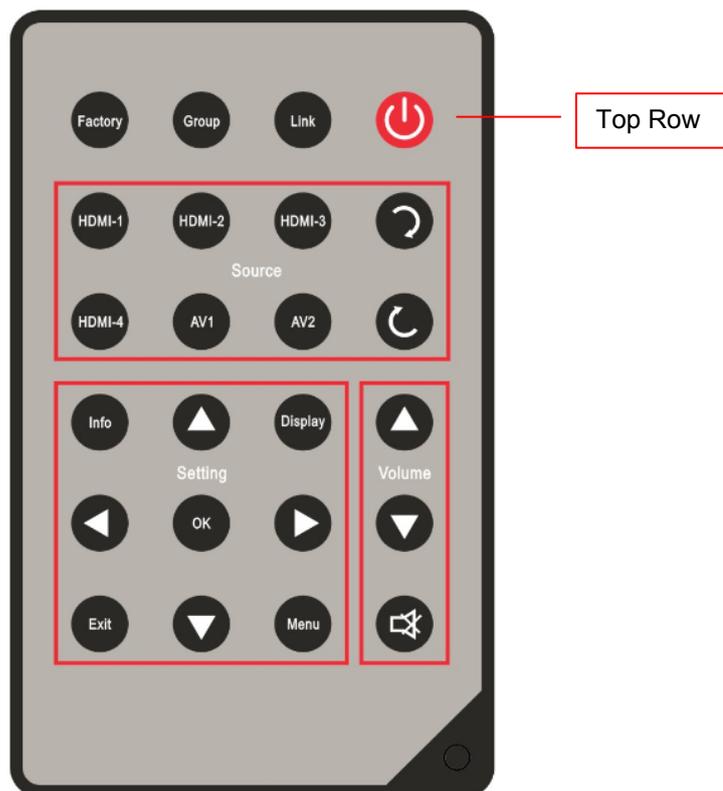
The setup is complete. You can try the remote controller on the Receiver.

## 5 Remote Controller

The HDMI Over Power Line system comes with its own Remote Controller Unit that is designed to control the Transmitter and Receiver. The Remote Controller can manipulate the TX locally or from a remote location (i.e. where receiver is located). The receiver accepts IR signals from the Remote Controller and passes them to the transmitter through the power lines.

The Remote Controller can also bring up and manipulate the OSD Menu on the TV attached to the RX. It can also adjust the audio volume on the receiver.

The Remote Controller panel is separated into 4 areas (Top Row, Source Area, Setting Area, Volume Area) as shown below:



### Remote Controller Button Descriptions

Fig A	rea	Name	Description
	Top Row	Active/Power Saving	Toggles the states of the TX and RX between Active mode and Power Saving mode. Power Saving mode is the state you can set the TX and RX to when not in use. In Power Saving mode, the RX & TX stop sending video to the TV monitors and then revert to a low-power state. The Power Saving mode for the RX and TX are independent of each other and must be set at their respective locations.
	Top Row	Link	Establishes a PLC connection between the TX/RX and other HomePlug AV PLC.
	Top Row	Group	Use this button if the RX and TX cannot establish a connection (cannot be paired). You also need to use this button when adding an additional RX to your existing RX/TX environment (or group.). This button is also used to allow the RX/TX to reset the system to factory defaults.
	Top Row	Factory	Reserved
	Source	Not in use	Reserved
	Source	Not in use	Reserved
	Source	Not in use	Reserved
	Source	Not in use	Reserved
	Source	Not in use	Reserved
	Source	Not in use	Reserved
	Source	Not in use	Reserved
	Source	Re-sync audio and video (for RX)	Use this button for audio and video re-synchronization when there is lip-sync issue on the receiver TV.

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Fig A	rea	Name	Description
	Volume	Increase Volume (for RX)	Increase audio volume on the receiver
	Setting	Display (for RX)	<ol style="list-style-type: none"> <li>When the OSD menu is not displaying, this button is used to toggle the TV system between 59.94 Hz (NTSC) and 50 Hz (PAL).</li> <li>When the OSD menu is displaying, this button is used to enable/disable the display of PLC throughput warning message</li> </ol>
	Setting	Scroll up (for RX)	Scroll up button on the OSD Menu
	Setting	Information (for RX)	Displays OSD information
	Volume	Decrease volume (for RX)	Decrease audio volume on the receiver
	Setting	Move right (for RX)	Move-to-right button on the OSD Menu
	Setting	Setting confirmation (for RX)	This button is like the "Enter" key, used to confirm a setting selection.
	Setting	Move left (for RX)	Move-to-left button on the OSD Menu
	Volume	Audio Mute	(for RX)Audio Mute on/off on the receiver (for TX)Change HDMI output color mode
	Setting	Menu (for RX)	Bring up OSD Menu on the display that is attached to the RX.
	Setting	Scroll down (for RX)	Scroll-down button on the OSD Menu
	Setting	OSD Exit (for RX)	Exit OSD Menu
	Setting	Force TX to wakeup	Force TX to wake up if TX and RX are in linked state
	Setting	Force TX to Standby	Force TX to enter into the standby mode if TX and RX are in linked state

## 6 OSD Menu

When the system is active, you can press the “Menu” button on the remote controller to bring up the OSD menu on the display attached to the RX. The OSD menu is used to configure various options as described below.

OSD Menu SETUP Items:

- Language
- Network Bandwidth
- Resolution Control
- Sleep Time
- LIP SYNC
- Select TX Station
- Information



### Navigating the OSD Menu

You can navigate the OSD Menu using the following keys on the Remote Controller.

- Press the “Exit” button to exit the OSD Menu
- Press [→] or “OK” buttons to select an item on the menu and move on to the next menu item.
- Press [↑] or [↓] buttons to select the optional items.

## OSD Menu Descriptions

Menu Item	Description	Options
Language	Selects language for OSD Menu	<ul style="list-style-type: none"> <li>■ English</li> <li>■ German</li> <li>■ Spanish</li> <li>■ Japanese</li> <li>■ Italian</li> <li>■ Traditional Chinese</li> <li>■ Simplified Chinese</li> <li>■ French</li> </ul>
Network Bandwidth	Choose the option that best matches your Network Bandwidth (Low – Excellent). This product uses your selection to adjust the compression bit rate to optimize the video stream and image quality. If you are unaware of your Network Bandwidth, you can simply choose the Auto Detect option.	<ul style="list-style-type: none"> <li>■ Auto Detect</li> <li>■ Low</li> <li>■ Fair</li> <li>■ Good</li> <li>■ Excellent</li> </ul>
Resolution Control	Selects the output resolution for the display attached to RX.	<ul style="list-style-type: none"> <li>■ By Source</li> <li>■ By TV</li> </ul>
Sleep Time	Sets the amount of time that the RX remains idle before it goes into Power Saving mode. RX is idle when it is not receiving video from the TX; the TX is idle when there is no video input from the “selected” media source (indicated by Source LED). Only RX uses this configuration option.	<ul style="list-style-type: none"> <li>■ Off</li> <li>■ 10 minutes</li> <li>■ 30 minutes</li> <li>■ 60 minutes</li> <li>■ 120 minutes</li> </ul>
LIP SYNC	The selections in this option are used as a reference value for the system to adjust audio timing. (only used for 60/59.94 Hz or NTSC video systems and does not apply to 50 Hz or PAL video system)	<ul style="list-style-type: none"> <li>■ 60 Hz</li> <li>■ 59.94 Hz</li> </ul>
Select TX Station	If there are multiple TX stations, this item allows users to select the TX station to receive video.	<ul style="list-style-type: none"> <li>■ TX station name is editable. The default names will be numbered 1~4</li> </ul>
Information		Firmware version of TX/RX

## 7 Adding an additional RX

You can attach up to 4 RXs to the single TX **depending on your power-line network quality**. Not all power-line is able to transmit video to multiple RXs. In most of applications, you can only turn on 2 RXs simultaneously.

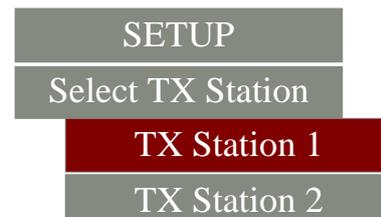
You must perform the RX-TX pairing procedures each time when you want to add an additional RX to your system. Please refer to Appendix 1 for the detail TX/RX pairing.

## 8 Running Multiple Transmitters with Multiple Receivers

Each receiver (RX) can be paired with a maximum of 4 transmitters (TX) as described in the Chapter “Adding an Additional RX”. Therefore, an HDMI Over PLC receiver can choose from multiple transmitters as the media source. Remote control will also be automatically redirected when changing to a different transmitter.

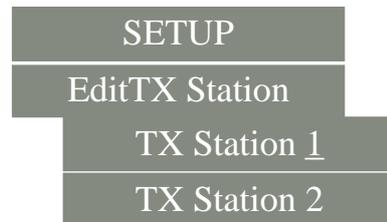
### 【Selecting a different TX source for a RX】

1. On the remote control (at the RX), press the “Menu” button to open the OSD menu. Use the up/down buttons to move to the “Select TX Station” item.
2. Press the “OK” button to enter the “Select TX Station” menu.
3. On the “Select TX Station” screen there is a TX stations list. Use the up/down buttons to select the TX Station.
4. Press the “OK” button to confirm the selection.
5. If the selected TX is currently transmitting the video, the video should begin to display.



## 【Modifying the name of TX Station】

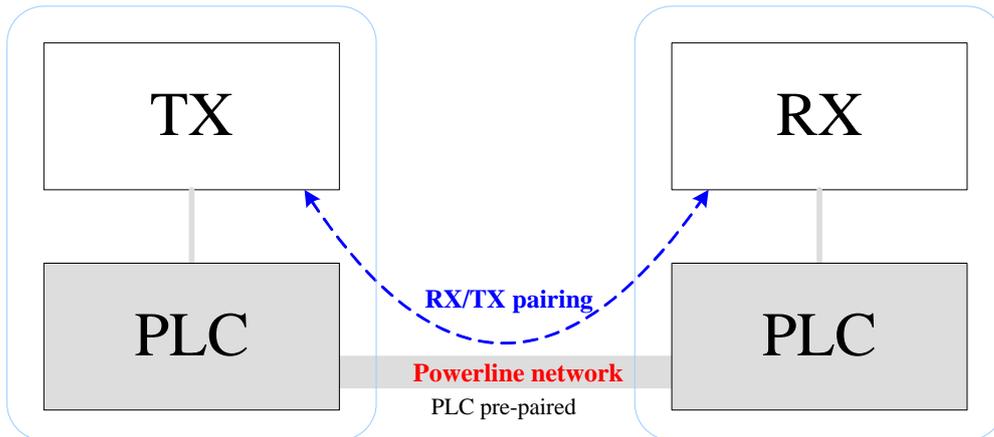
1. On the remote control, press the “Menu” button to open the **OSD** menu and use the up/down buttons to move to the “Select TX Station” item.
2. Press the “OK” button to enter “Select TX Station” menu.
3. Press the up/down buttons and highlight the intended TX.
4. Press the “Menu” button again to edit the name of selected TX. Editing keys are described below:
  - ◆ The underline below the TX name implies the current cursor position.
  - ◆ Use the  and the  buttons to select a certain character (alphabet or numeric).
  - ◆ Use the  button to move back one space, deleting one character.
  - ◆ Use the  button to confirm the character selection and move to next space.
  - ◆ Use the  button to finish the editing.



## Appendix 1 RX/TX Pairing

These procedures are used when you want to add an additional RX into the environment or re-pairing RX/TX is necessary.

“Pairing” is performed to establish/re-establish a logical connection between the RX and TX.



There are two methods to pair the RX with TX as described below:

**a) Press “Group” buttons on the RX and TX rear Panels:**

1. Press the Group button on the rear panel of the RX until the “PAIRING” message displays on the TV attached to the RX.
2. Press the Group button on the rear panel of the TX for 1 second at least until the Link and PWR LEDs begin to alternately “double blink”.

**b) Press “Group” key on the remote controller**

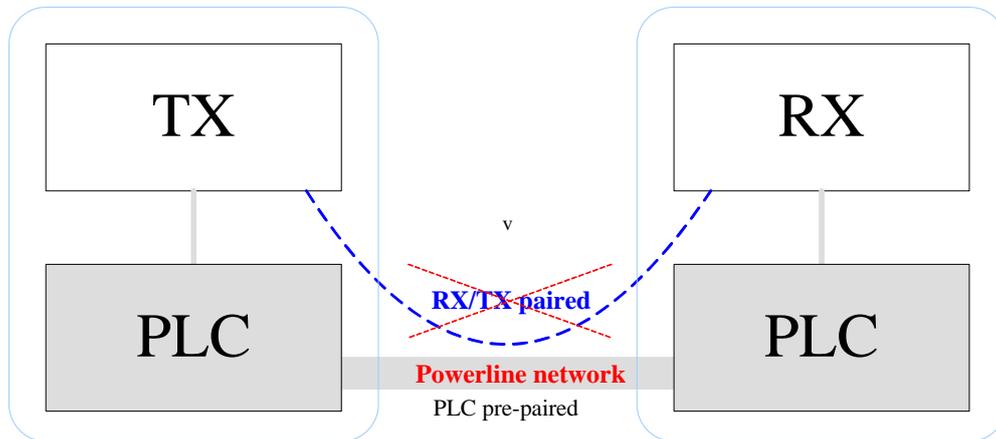
Push the  (Group button) on the remote controller to pair the RX and TX.

If the pairing success, the message on the TV screen will change from “PAIRING” to “PAIRED”, followed by the video (if video is currently streaming from the source).

**NOTE:** It is strongly recommended to do the procedures (RX/TX Pairing) with the RX and TX in the same vicinity, preferably on the same power outlet (for testing). The max pairing number for TX/RX is 4. Please refer to the Appendix 2 to reset the pairing table if there’s no more space in the pairing table.

## Appendix 2 Reset RX/TX to System Defaults

The procedures below set the RX and TX to factory defaults and are used when troubleshooting the system (i.e. Video fails to appear on TV attached to RX).



- At the TX, press the Group Button  several times (in rapid succession) on the remote controller and **CONTINUE** to do so until all the LEDs on the front panel illuminate; then press the  button (on the remote controller). The LEDs will flash off-on-off-on and TX will reboot automatically. TX will be reset to the factory default settings.
- At the RX, press the Group Button  on the remote controller **AT LEAST 5 TIMES** (in rapid succession) until the screen message displays on the TV. then press the  button (on the remote controller) to reset to the factory default settings.

**Note:** If you reset the system to the factory default values according to this Appendix 2, you will need to execute the RX/TX Pairing procedures (Appendix 1) again.

Reset to default settings ?  
Press "OK" to reset.  
Or,  
Press any key to exit.

## Appendix 3 Trouble Shooting Checklist

<b>Trouble Shooting</b>		
<b>Scenario Possible</b>	<b>Reason</b>	<b>Resolution</b>
TV attached to the RX displays no video images	<ul style="list-style-type: none"> <li>● Power is switched “off” at the RX or TX.</li> <li>● Cable connections are not secure.</li> </ul>	<ul style="list-style-type: none"> <li>■ Make sure the power switches on the back panels of both the TX and RX are turned on.</li> <li>■ Make sure the power cables and HDMI cables are secured.</li> </ul>
	<ul style="list-style-type: none"> <li>● Media source player is not working properly.</li> </ul>	<ul style="list-style-type: none"> <li>■ Verify that the media source (e.g. player) is working properly by connecting it directly to a TV.</li> </ul>
	<ul style="list-style-type: none"> <li>● Media source player is sending a video format that is not supported by the TX &amp; RX (e.g. 1080@60P).</li> </ul>	<ul style="list-style-type: none"> <li>■ If the media source player can work directly with the TV, it might indicate a problem with the video/audio format. Check Appendix 4 (Video Specifications) to make sure the video format delivered by the player is supported by the system (RX/TX).</li> </ul>
	<ul style="list-style-type: none"> <li>● Interference from an EMI or electrical surge protection device.</li> </ul>	<ul style="list-style-type: none"> <li>■ If there are electrical surges or an EMI protection circuit inside the power socket, change to the different socket. Also, make sure that you are using all three prongs on the power connector.</li> </ul>
Power indicator LED is not illuminated.	<ul style="list-style-type: none"> <li>● Power not turned “On” for RX or TX.</li> </ul>	<ul style="list-style-type: none"> <li>Check the power switch on the rear panels of both RX and TX to make sure both are turned “On” .</li> </ul>
	<ul style="list-style-type: none"> <li>● Device is not starting normally</li> </ul>	<ul style="list-style-type: none"> <li>■ If there is no response to the buttons or remote controllers, try turning the power switch “Off” and “On” .</li> </ul>
	<ul style="list-style-type: none"> <li>● Power supply short</li> </ul>	<ul style="list-style-type: none"> <li>■ If the suggestions above do not remedy the problem, the power supply in the devices may have a short. Unplug the power cords immediately and contact your dealer.</li> </ul>
The TV attached to the RX displays “Not paired, please do pairing” .	<ul style="list-style-type: none"> <li>● RX and TX are not successfully paired.</li> </ul>	<ul style="list-style-type: none"> <li>■ Try the pairing procedures in Appendix 1 to re-establish connections (pairing).</li> <li>■ If it does not resolve the problem, refer to Appendix 2 (Reset TX/RX) first and then Appendix 1 (system pairing).</li> </ul>
The RED LED on TX front panel is always flashing.	<ul style="list-style-type: none"> <li>● Media source player is not powered on or is in standby mode</li> </ul>	<ul style="list-style-type: none"> <li>■ Check to see if the media source player is turned on.</li> <li>■ Check to see if the media source player is sending video (may have to press the play button on the media source player).</li> </ul>
	<ul style="list-style-type: none"> <li>● Unsupported video/audio format from the media source player</li> </ul>	<ul style="list-style-type: none"> <li>■ Refer to the user manual of media source player and make sure it is sending a video format supported by</li> </ul>

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Trouble Shooting		
Scenario Possible	Reason	Resolution
		the system such as 1920X1080@60i, PCM audio – see Appendix 4 Video Specifications.
During video playback TV displays “Waiting for TX to be ready.”	<ul style="list-style-type: none"> <li>● PLC network cannot support enough bandwidth or network quality is not stable, which results in suspension of the video picture.</li> </ul>	<ul style="list-style-type: none"> <li>■ This problem will usually resolve by itself within a minute.</li> <li>■ If it is a persistent problem, it may be a faulty socket. Try another socket.</li> </ul>
	<ul style="list-style-type: none"> <li>● RX is continuously rebooting.</li> </ul>	<ul style="list-style-type: none"> <li>■ If the Power LED indicator keeps turning on and off, the power supply may not stable. Unplug the power cord and contact your dealer.</li> </ul>
Message: “unsupported format”	<ul style="list-style-type: none"> <li>● The resolution of the media source player output is not supported by the TX. The system can only support up to 1920x1080@60i or 1920x1080@24P</li> </ul>	<ul style="list-style-type: none"> <li>■ Media sources may be configured to “auto detect” the format used by the TX; in this case there are usually no problems. However, if the Media source had been manually configured to send a certain format that is not supported by the TX, you will need to reference the Media source manual to reset the format to one supported by the TX (see Appendix 4 – Video Specifications).</li> </ul>

## Appendix 4 system Specifications

### Video Specifications:

Resolution	Interface	HDMI
1920 x 1080p/24, 23.98		✓
1920 x 1080i/60, 59.94		✓
1920 x 1080i/50		✓
1280 x 720p/60, 59.94		✓
1280 x 720p/50		✓
720 x 576p/50		✓
720 x 480p/60, 59.94		✓
720 x 576i/50		✓
720 x 480i/59.94		✓

### Audio Specifications:

Interface	HDMI
Format	PCM
Sampling rate and resolution	44.1/48 kHz, 16 bits
Audio channel	2 channel
Connector	HDMI

### System Specifications:

Item	Transmitter	Receiver	Note
HDMI Port	Input: 1, Output: 1	1	
IR sensor port		1	36/38 kHz / 56 kHz
Remote Controller	1		
IR Blaster port	1		
IR Blaster cable	1		
AC Power Input	100-240V/50, 60 Hz		0.15A max.
Power Consumption	12W	9W	average
Operation Temperature and Humidity	10~40°C, 30~80%RH		
Storage Temperature and Humidity	-20~80°C, 20~90%RH		