PowerHDLink

User Manual

Version 1.0

For the following models:

AVM-6985H-SYS-A1, AVM-6986H-SYS-A1
AVM-6985H-SYS-A3, AVM-6986H-SYS-A3

Powered by HDMI Technology

HIGH-DEFINITION MULTIMEDIA INTERFACE

Document Number: 1-M-PAE1HL-0002

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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 accidently 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 PowerHDLink 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. PowerHDLink also allows you to use IR Remote Controllers to control A/V equipment (stop/start/FF/Rewind etc.) remotely using IR signals. The Transmitter and Receiver also have an additional function of delivering Ethernet data over Power Lines, allowing you to access the Internet from any room.

PowerHDLink Kit Contents

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

Package Contents

A. PowerHDLink Transmitter
B. PowerHDLink Receiver
C. Power Cord (x2)
D. IR Blaster cable
E. Remote Control
F. 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 Cord specifications will vary, depending on country or region.

2. Quick Setup Guide

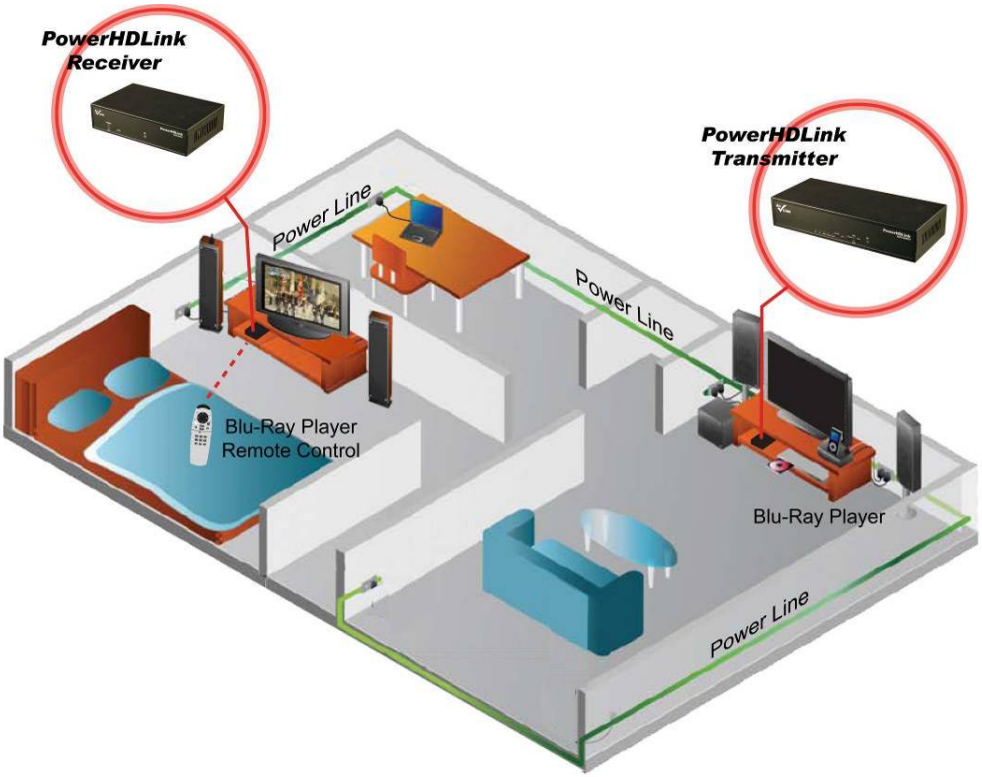
This chapter describes how to get your PowerHDLink environment quickly installed. After the setup, you will be able to view video that is streaming from a video player on one power outlet to a TV on another power outlet anywhere in your home. For this setup you will also need:

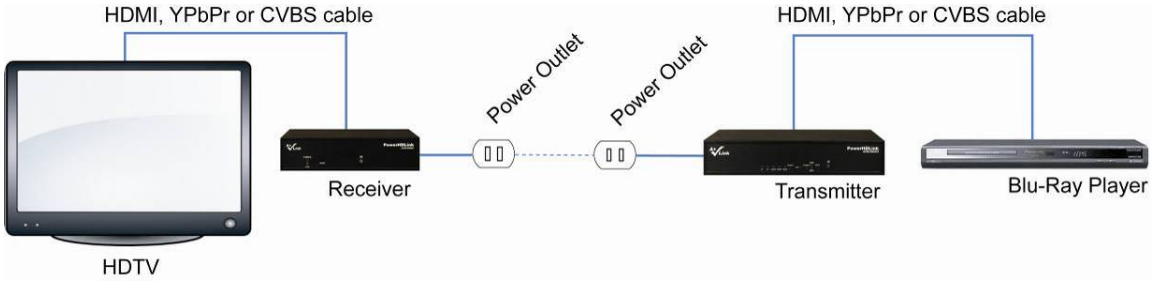
- TV (Standard or HDTV) with HDMI, YPbPr or CVBS connectors
- Video player (e.g. Blu-Ray player, DVD player) with HDMI, YPbPr or CVBS/S-Video connectors
- Two available power outlets

IMPORTANT: There are several models referencing this User Manual. They vary in features, according to the table below. You will need to disregard those features mentioned in this manual that do not apply to your specific model.

Model number	Ethernet Bridge over PLC	HDMI	YPbPr	CVBS/S-Video
AVM-6985H-SYS-A1 AVM-6986H-SYS-A1	✓	✓	✓	✓
AVM-6985H-SYS-A3 AVM-6986H-SYS-A3	✓	✓		

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 PowerHDLink Transmitter. The PowerHDLink can use HDMI, YPbPr or CVBS/S-Video video cables. You must choose from one of those cabling options as described below.

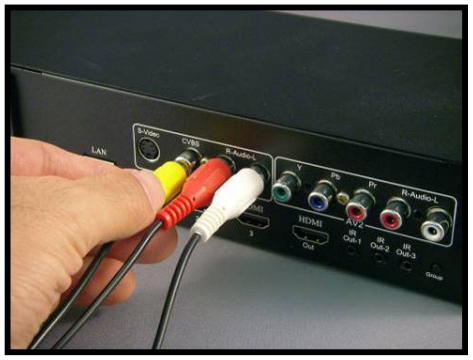
a) **HDMI** cable - This cable (shown right) has a simple, single connection between your player and transmitter.

If you have an HDMI Cable

b) **YPbPr** video cables – This cable has 3 connectors, each color coded (green, blue and red). Simply match the colors on the connectors with the color coded adapters on the Transmitter. Since YPbPr video cable doesn't carry audio, you must also attach an audio cable between the player and transmitter – this cable will have 2 audio connectors (left-right speakers, usually red and white). You will need to connect a total of 5 connectors (shown right). Attach the other ends to your Video Player.

If you have YPbPr and Audio Cables

c) **CVBS** video cable - This video cable is a single cable with a video connector (usually yellow). You will also need to attach two audio connectors (L-R speakers, audio connectors are usually red and white). These cables may come as a single cable with 3 connectors. Attach the other ends to your Video Player.



If you have CVBS & Audio Cables

d) **S-Video** video cable - This video cable is a single cable with a video connector (usually black.) You will also need to attach two audio connectors (L-R speakers, audio connectors are usually red and white). Attach the other ends to your Video Player. The S-Video and CVBS video cannot be used simultaneously.

If you have S-Video & Audio Cables

Note: If your Video Player gives you a choice of using HDMI, YPbPr and CVBS/S-Video, it is better to choose HDMI for ease of installation. Also, HDMI and YPbPr picture quality are both noticeably better than CVBS/S-Video.

Step 2: Connect the HDTV set to the Receiver

Connect your PowerHDLink receiver to the HDTV. The receiver is capable of using HDMI, YPbPr and CVBS cables. You must choose from one those options as shown below.

a) **HDMI** cable - The figure to the right shows an HDMI connection to the RX. Attach the other end to your HDTV.

If you have an HDMI cable

b) **YPbPr** cables - Connect the YPbPr cables in the same way as the Player-TX connections, matching the colors between the connectors and adapters. There are two audio connectors for the L-R audio connectors below the YPbPr adapters (on the RX). Attach the other ends of all the connectors to your HDTV.

If you have YPbPr & Audio Cables

c) **CVBS** cable - Connect the **CVBS** and Audio connectors to the 3 connectors below the YPbPr connectors (as shown right). Attach the other ends to your HDTV.

Note: The connections you use between Player-TX and between HDTV-RX do not have to be the same. In other words, if you are using an HDMI cable between Player-TX, you can use YPbPr or CVBS between HDTV-RX.

If you have CVBS and Audio cables

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 cables to the TX and RX

Connect one end of the TX power cable to the Transmitter. Connect one end of the RX power cable to the Receiver.

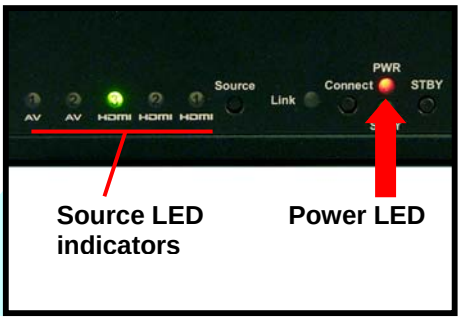
Step 5: Connect the Power Cords to Power outlets

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 6: 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. The Source LED indicator on the TX will show which of the available input connectors is currently in use

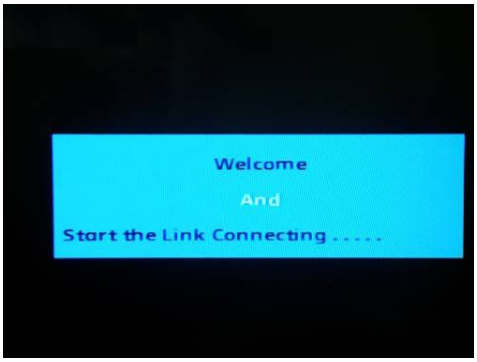


Source LED indicators on front panel:

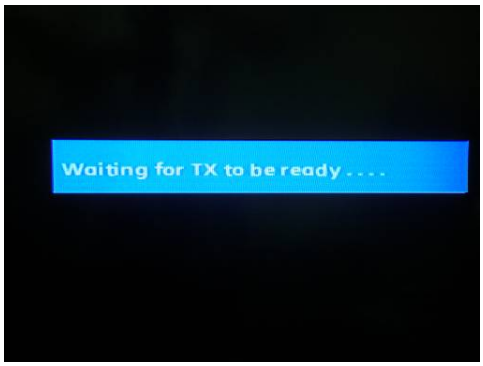
1	HDMI connector 1
2	HDMI connector 2
3	HDMI connector 3
AV1	CVBS/S-Video
AV2	YPbPr connectors

In our example we connected the Blu-Ray player to HDMI #3, so the Source LED indicator “HDMI 3” should illuminate.

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.



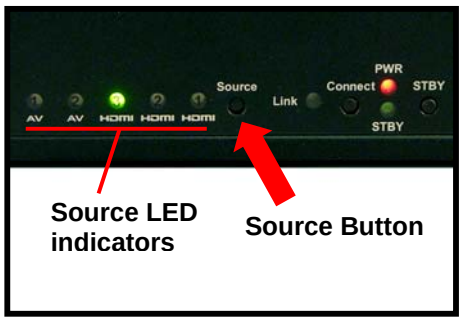
3. Troubleshooting

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.
- Make sure that the Source LED indicator matches the physical connection between the TX and player that is connected to it. The LED indicators are described in the table below.

1	HDMI connector 1
2	HDMI connector 2
3	HDMI connector 3
AV1	CVBS/S-Video
AV2	YPbPr connectors



e.g. If you attached a Blu-Ray player to your Transmitter using YPbPr, but your Source LED indicator “1” is illuminated (HDMI port1), the transmitter is looking on the wrong input connector. Simply press the Source button (see above) on the TX until the appropriate Source LED indicator illuminates (AV2 in this example).

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

Step 2: Pairing procedures for troubleshooting

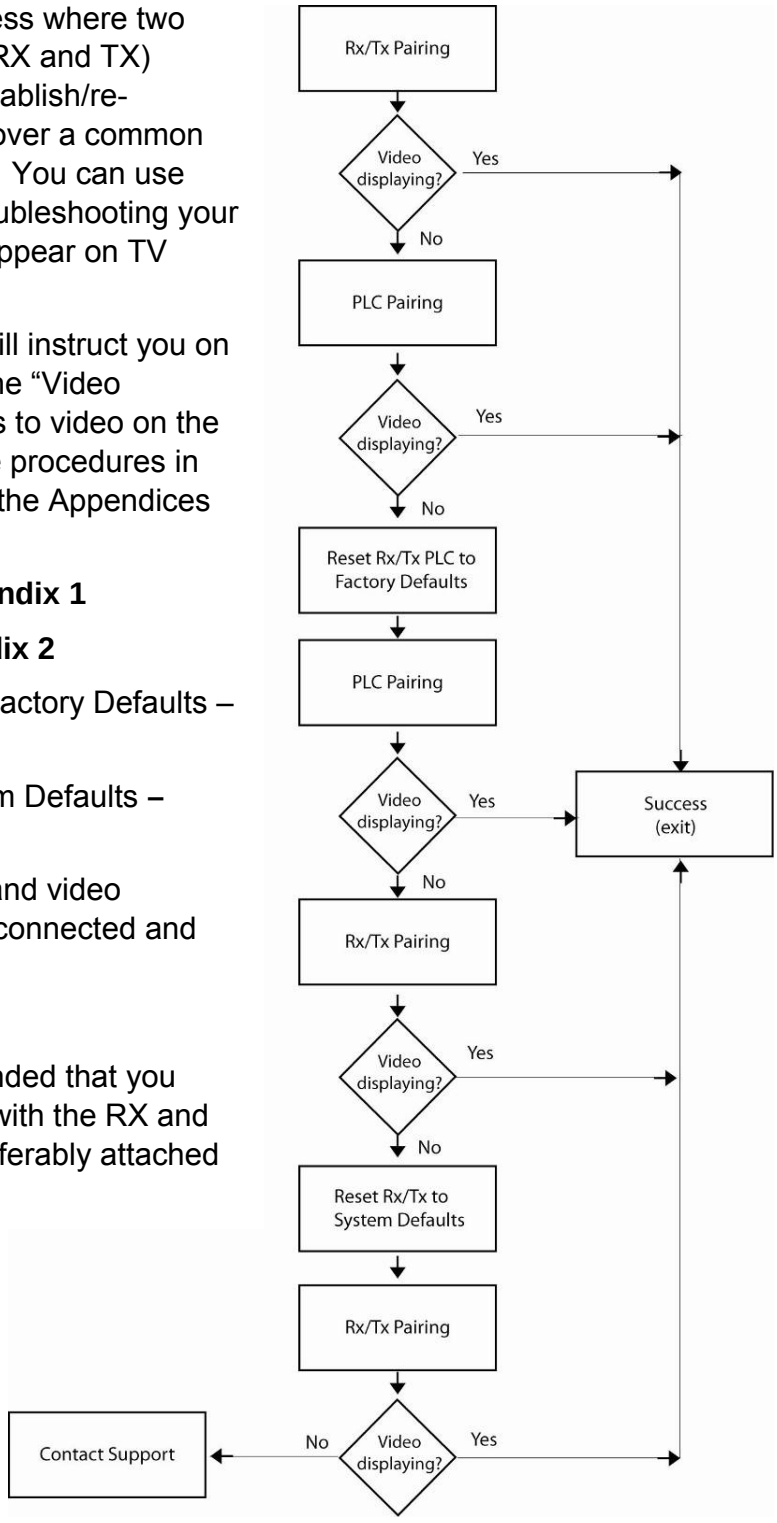
"Pairing" refers to the process where two independent systems (i.e. RX and TX) identify themselves and establish/re-establish communications over a common medium (i.e. Power Lines). You can use these procedures when troubleshooting your system (i.e. Video fails to appear on TV connected to your RX).

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

- RX/TX Pairing – **Appendix 1**
- PLC Pairing – **Appendix 2**
- Reset RX/TX PLC to Factory Defaults – **Appendix 4**
- Reset RX/TX to System Defaults – **Appendix 3**

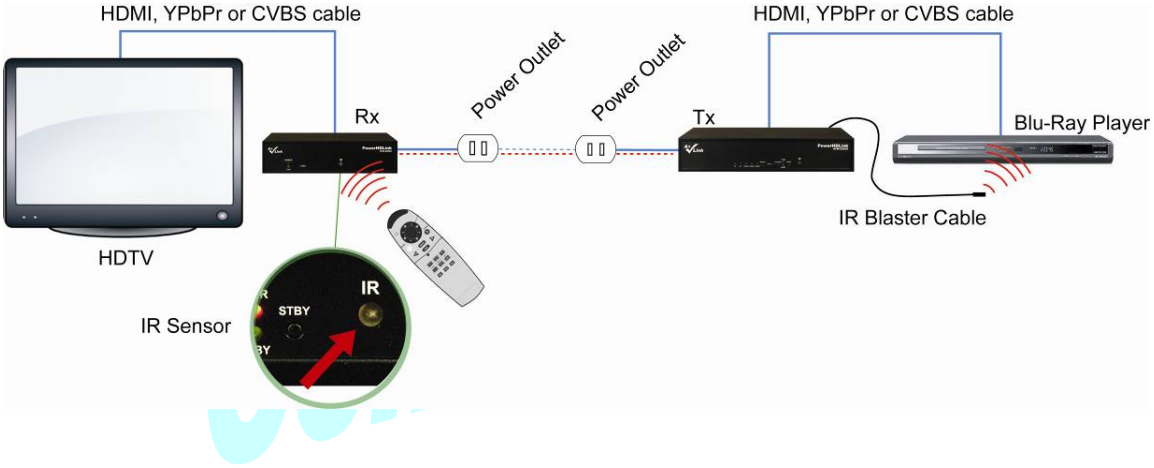
It is assumed that RX, TX and video equipment are all properly connected and powered on.

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 PowerHDLink 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 (IR Out-1 adapter).

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.

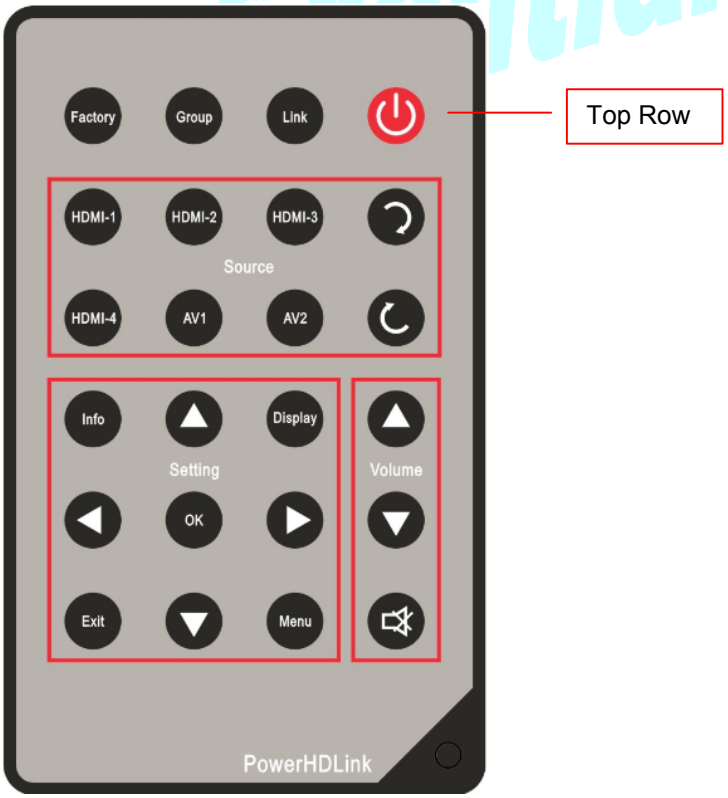
The setup is complete. You can try the remote controller on the Receiver.

5 PowerHDLink Remote Controller

The PowerHDLink 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.

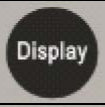
The Remote Controller can also bring up and manipulate the OSD Menu on the TV attached to the RX. It can also adjust the audio volume on the receiver.

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

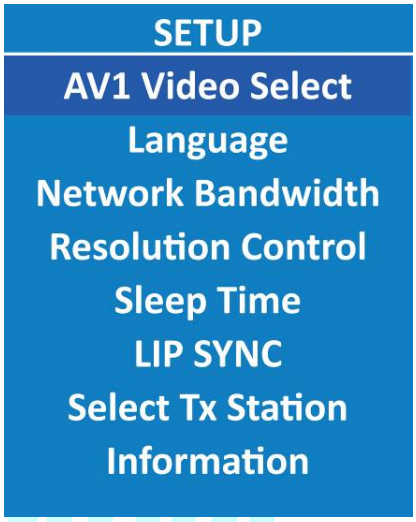


Remote Controller Button Descriptions

Fig	Area	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. These devices, although in Power Saving mode, can still continue to deliver Ethernet data in the background (see Chapter "Ethernet over PLC Function"). 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	Re-establishes a PLC connection between the TX and the RX.
	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 (only for RX)	Resets the RX PLC to the factory default settings.
	Source	Select next source	Selects next input source of the TX. Similar to the "Source" button on the TX. It is used to switch from the current input source to next (e.g. HDMI-1, HDMI-2, HDMI-3, AV1, AV2 etc).
	Source	Select HDMI-3	Change current TX input source to HDMI-3
	Source	Select HDMI-2	Change current TX input source to HDMI-2
	Source	Select HDMI-1	Change current TX input source to HDMI-1
	Source	Select previous source	Move backwards to the previous TX input source. It is the opposite of "Select next source".
	Source	Select AV2	Change current TX input source to AV2 (YPbPr)
	Source	Select AV1	Change current TX input source to AV1 (CVBS/S-Video)

Fig	Area	Name	Description
	Source	Not in use	Reserved
	Volume	Increase Volume (for RX)	Increase audio volume on the receiver
	Setting	Display (for RX)	Toggle TV system between 59.94 Hz (NTSC) and 50 Hz (PAL).
	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
	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

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:

- AV1 Video Select
- Language
- Network Bandwidth
- Resolution Control
- Sleep Time
- LIP SYNC
- Information

Navigating the OSD Menu

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

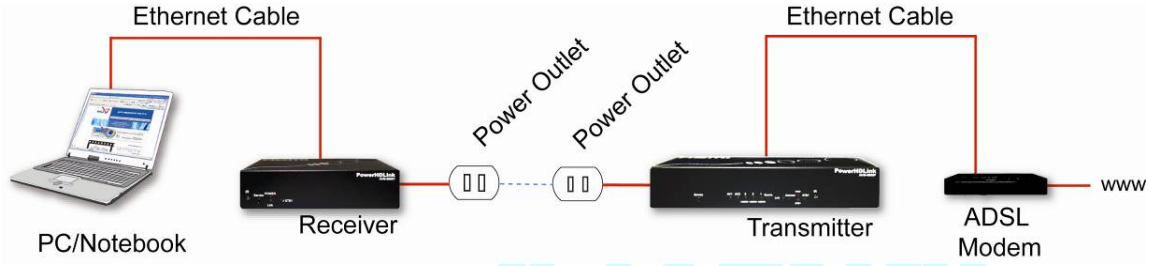
- Press the "Exit" button to exit the OSD Menu
- Press [→] or "OK" buttons to select an item on the menu and move on to the next menu item.
- Press [↑] or [↓] buttons to select the optional items.

OSD Menu Descriptions

Menu Item	Description	Options
AV1 Video Select	Selects CVBS or S-Video input source as AV1	■ CVBS ■ S-Video
Language	Selects language for OSD Menu	■ English ■ German (optional) ■ Spain (optional) ■ Japanese (optional) ■ Italy (optional) ■ Traditional Chinese (optional) ■ Simplified Chinese (optional) ■ French (optional)
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.	■ Auto Detect ■ Low ■ Fair ■ Good ■ Excellent
Resolution Control	Selects the output resolution for the display.	■ By Source ■ By TV
Sleep Time	Sets the amount of time that either the TX or RX remain idle before they go 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). Both RX and TX use this same configuration option.	■ Off ■ 10 minutes ■ 30 minutes ■ 60 minutes ■ 120 minutes
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 systems)	■ 60 Hz ■ 59.94 Hz
Information		Firmware version

7 Ethernet over PLC Function

The “Ethernet over PLC” Function allows you to deliver Ethernet data anywhere in your home over Power Lines. This means that you can access the Internet and browse the web from anywhere, without rewiring your entire home with Ethernet cabling.



Both the RX and TX have LAN connectors on their rear panels; the ADSL modem connects to the TX and your Notebook/PC connects to your RX in a separate location (as shown in the diagram above). **Note**: Do not connect the LAN ports between the Receiver and the Transmitter as it will disrupt any video streaming through the products.

8 Adding an Additional RX

You can attach up to 4 RX’s for one TX. Every time you add an additional RX to your system, you must perform the procedures below, in order:

1. Reset RX PLC to Factory Defaults (Refer to **Appendix 4**)
2. PLC Pairing (Refer to **Appendix 2**)
3. RX-TX Pairing (Refer to **Appendix 1**)

9 Running TX as a Standalone Box

You can use the TX in standalone mode without the RX. In other words, you can use the TX, along with the TV and input video devices attached to it, as a standalone system (i.e. Video Switching Box).

If both RX and TX are powered on and working, you can simply turn off the RX and the TX becomes a standalone system.

However, if both TX and RX are initially turned off, turn on your TV and then turn on your TX. After the TX has gone through its initialization process (10-20 seconds), you can depress the Source button on the TX (front panel) for about 1 second (or any remote control button in the Source area), which will stop the TX from trying to link with a RX. Once the input Source LEDs stop blinking, your TX is ready for use in standalone mode.

10 Running Multiple Transmitters with Multiple Receivers

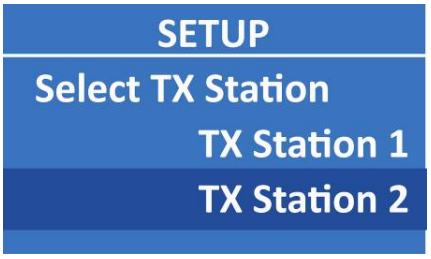
Each receiver (RX) can be paired with a maximum of 4 transmitters (TX) as described in the Chapter “Adding an Additional RX”. Therefore, a PowerHDLink receiver can choose from multiple transmitters as the media source. Remote control will also be automatically redirected when changing to a different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

【Selecting a different TX source for a RX】

1. On the remote (at the RX), press the “Menu” button to open the OSD menu. Use the up/down arrow 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 all TX stations paired with the RX are displayed. Use the up/down arrow keys to highlight the TX Station you want to choose.



4. Press the “OK” button to confirm the selection.
5. If the selected TX is currently transmitting video, the video should begin to display.

【Modifying the name of a TX device】

1. On the remote control, press the “Menu” button to open the **OSD** menu and use the up/down arrow 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 arrow 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.

【Restoring the device name to the default setting】

Please refer to appendix 3, which will restore RX back to the default settings.

Note: TX/RX of PowerHDLink can continue to operate while users are pairing different devices. The only exception is if one device is reset to default values after pairing; in this case the RX will not be able to receive media and you must pair the RX/TX again (refer to appendix 1).

Appendix 1 RX/TX Pairing

"Pairing" is performed to establish/re-establish a connection between the RX and TX. These procedures are used during troubleshooting (i.e. video fails to appear on TV) or when installing an additional RX to the environment. There are two ways to Pair the RX and TX as described below:

a) "Pairing" using the 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 2 seconds.

If the link is successful, the message on the TV screen will change from "PAIRING" to "PAIRED", followed by the video (if video is currently streaming from the source).

b) "Pairing" using the remote controller

Push the 

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

NOTE: It is strongly recommended to do these procedures (Pairing) with the RX and TX in the same vicinity, preferably on the same power outlet (for testing). Also see "Troubleshooting" section and "Adding a new RX" section for proper use of these procedures.

Appendix 2 PLC Pairing

PLC Pairing is different from “RX/TX Pairing” (Appendix 1); it is done at a lower, more primitive layer than “RX/TX Pairing”. However, it is done for the same reasons; to re-establish a link between RX and TX. It is done if “RX/TX Pairing” fails to resolve the original problem.

1. Press the 

(Link button) on the remote controller at the TX and RX.

   A “Doing PLC Grouping” message will display on the TV at the RX.

   If the link is successful, the video will begin to display on the remote TV (assuming video is currently being streamed from the source).

NOTE: It is strongly recommended to do these procedures (PLC Pairing) with the RX and TX in the same vicinity, preferably on the same power outlet (for testing). Also see the “Troubleshooting” section and the “Adding a new RX” section for proper use of these procedures.

Appendix 3 Reset RX/TX to System Defaults

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

a) At the TX, press the Group Button 

on the remote controller **AT LEAST 3 TIMES** (in rapid succession) until all the source LEDs on the front panel illuminate; and then press and hold down the ID Setup button (at rear panel of TX) for about 6 seconds until all the LEDs flash off-on-off-on. The TX will be reset to the system factory default settings.

b) 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 (as shown below). Then press and hold down the Group (ID Setup) button (at the rear panel of the RX) for about 6 seconds to reset to the factory defaults.

Note: If you reset the systems to the factory system default values, you will need to execute the RX/TX Pairing procedures (Appendix 1)**.** Also see the "Troubleshooting" section for proper use of these procedures.

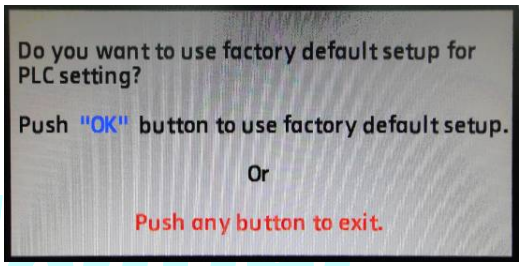
Appendix 4 Reset RX/TX PLC to Factory Defaults

The RX/TX PLC Factory Default settings are different from the RX/TX System Default settings described in Appendix 3. These procedures are used when attaching an additional RX to your system or when troubleshooting your system.

a) On the TX, press the Group button (rear panel) and Source button (front panel) simultaneously for 6 seconds, until all LEDs go off-on-off-on.

b) On the RX, press the 

(Factory button) on remote controller until the screen message displays on the TV, as shown on the right. Press the “OK” button to reset the defaults (you can press any other button to exit the operation).



Note: See “Adding an additional RX” section or “Troubleshooting section for proper use of these procedures.

Appendix 5 Trouble Shooting Checklist

Trouble Shooting		
Scenario	**Possible Reason**	**Resolution**
TV attached to the RX displays no video images	● Power is switched "off" at the RX or TX. ● Cable connections are not secure.	■ Make sure the power switches on the back panels of both the TX and RX are turned on. ■ If power switch is turned on at the TX, but the Power LED is off or STBY LED is "On", press the "CONNECT" button on the front panel of TX or the "LINK" button on the rear panel of RX. ■ Make sure the power cables and video/audio cables are secured.
	● The illuminated Source LED light on the front panel of the TX does not reflect the actual video source connection in back of the TX.	■ Press the "Source" button on the front panel of the TX until the appropriate Source LED indicator illuminates.
	● Media source player is not working properly.	■ Verify that the media source (e.g. player) is working properly by connecting it directly to a TV.
	● Media source player is sending a video format that is not supported by the TX & RX (e.g. 1080@60P).	■ If the media source player can work directly with the TV, it might indicate a problem with the video/audio format. Check Appendix 6 (Video Specifications) to make sure the video format delivered by the player is supported by the system (RX/TX).
	● RX/TX are not paired	■ Check if all Source LEDs in the front panel of TX are flashing together. This means that the RX and TX are not paired and require re-pairing. (Appendix 1).
	● Interference from an EMI or electrical surge protection device.	■ 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.
Power indicator LED is not illuminated.	● The system may have been configured to automatically shut down after a certain "sleep time". See OSD Menu descriptions.	■ Check the STBY indicator LED on the front panels of both RX and TX. If the STBY indicator LED is on, press the STBY button on the front panel or use the power button on the remote controller to wake up the TX or RX.
	● Power not turned "On" for RX or TX.	■ Check the power switch on the rear panels of both RX and TX to make sure both are turned "On".

Trouble Shooting		
Scenario	**Possible Reason**	**Resolution**
	● Device is not starting normally	■ If there is no response to the buttons or remote controllers, try turning the power switch "Off" and "On".
	● Power supply short	■ 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.
The Source LED indicators on the front panel of the TX are flashing or TV attached to the RX displays "Not paired, please do pairing".	● RX and TX are not successfully paired.	■ Try the pairing procedures in Appendix 1 and Appendix 2 to re-establish connections (pairing). ■ If it does not resolve the problem, refer to Appendix 2 (PLC pairing) first and then Appendix 1 (system pairing).
TX source LED indicators are flashing from right to left.	● TX and RX connectivity is not established due to bad electrical line quality or RX is not powered on.	■ Make sure the RX is powered on. ■ If the RX is powered on, proceed to PLC pairing procedures. (Appendix 2).
	● RX and TX are not paired successfully.	■ Check the TV attached to the RX to see if it displays "Not paired, please do pairing" message. If so, pair the TX and RX. (Appendix 1).
The Source LED is always flashing.	● Media source player is not powered on or is in standby mode	■ Check to see if the media source player is turned on. ■ Check to see if the media source player is sending video (may have to press the play button on the media source player).
	● Unsupported video/audio format from the media source player	■ Refer to the user manual of media source player and make sure it is sending a video format supported by the system such as 1920X1080@60i, PCM audio – see Appendix 6 Video Specifications.
The selected Source LED is on but the Link LED is not flashing	● The distance between TX and RX is too far or the quality of the electrical power line is poor.	■ Try changing to a different socket. ■ Shorten the distance between the RX and TX (i.e. move them to different sockets located closer to each other). ■ If the suggestions above do not resolve the problem, try to pair the system. (Appendix 1).
	● TX is not working properly.	■ Press the "CONNECT" button on the front of the TX or reboot the device.
	● RX is not working well	■ Press the "LINK" button on the rear panel of RX or reboot the device and check again.
During video playback TV displays "Waiting	● PLC network cannot support enough bandwidth	■ This problem will usually resolve by itself within a minute.

Trouble Shooting		
Scenario	**Possible Reason**	**Resolution**
for TX to be ready."	or network quality is not stable, which results in suspension of the video picture.	■ If it is a persistent problem, it may be a faulty socket. Try another socket.
	● RX is continuously rebooting.	■ If the Power LED indicator keeps turning on and off, the power supply may not stable. Unplug the power cord and contact your dealer.
Message: "unsupport-ed format"	● 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	■ 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 6 – Video Specifications).

Appendix 6 System Specifications

Video Specifications:

Interface / Resolution	HDMI	CVBS	Component
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:

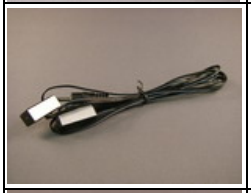
Interface	HDMI	Stereo RCA
Format	PCM	5.0Vpp-Max.
Sampling rate and resolution	48 kHz,16 bits	48 kHz,16 bits
Audio channel	2 channel	2 channel
Connector	HDMI	RCA

System Specifications:

Item	Transmitter	Receiver	Note
HDMI Port	Input: 3, Output: 1	1	
Component port	1	1	AVM-6985H-SYS-A3
CVBS port	1	1	
S-video port	1		AVM-6986H-SYS-A3
Stereo audio port	2	1	Not supported
PLC Bridge Function	1	1	
IR sensor port	1	2	38 kHz
Remote Controller	1		
IR Blaster port	3		
IR Blaster cable	1		
Ethernet(RJ-45) port	1	1	
AC Power Input	100-240V/50, 60 Hz		0.2A max.
Power Consumption	12W	9W	average
Operation Temperature and Humidity	10~50℃,30~80%RH		
Storage Temperature and Humidity	-20~80℃, 20~90%RH		

Appendix 7 Spare Parts

The following table lists spare components; please contact us or your distributor.

Spare Parts	Description	Model or Part Number	Note
	Transmitter	AVM-6985H-SYS-A1	Full version
		AVM-6985H-SYS-A3	Deluxe version
	Receiver	AVM-6986H-SYS-A1	Full version
		AVM-6986H-SYS-A3	Deluxe version
	Power Cord	7006-03030-89001	NA Specification
	Power Cord	7006-03030-89003	EU Specification
	IR Blaster cable	7006-03000-45001	2.5 mm, used for transmitter
	Remote Controller	7006-00080-09004	Only for PowerHDLink
	HDMI cable	7006-03000-87001	60 cm

Spare Parts	Description	Model or Part Number	Note
	IR sensor extension cable	7006-00000-91002	2.5 mm, used for receiver

Revision History

Date	Revision	Description
2011/2/11	1.0	First Release

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