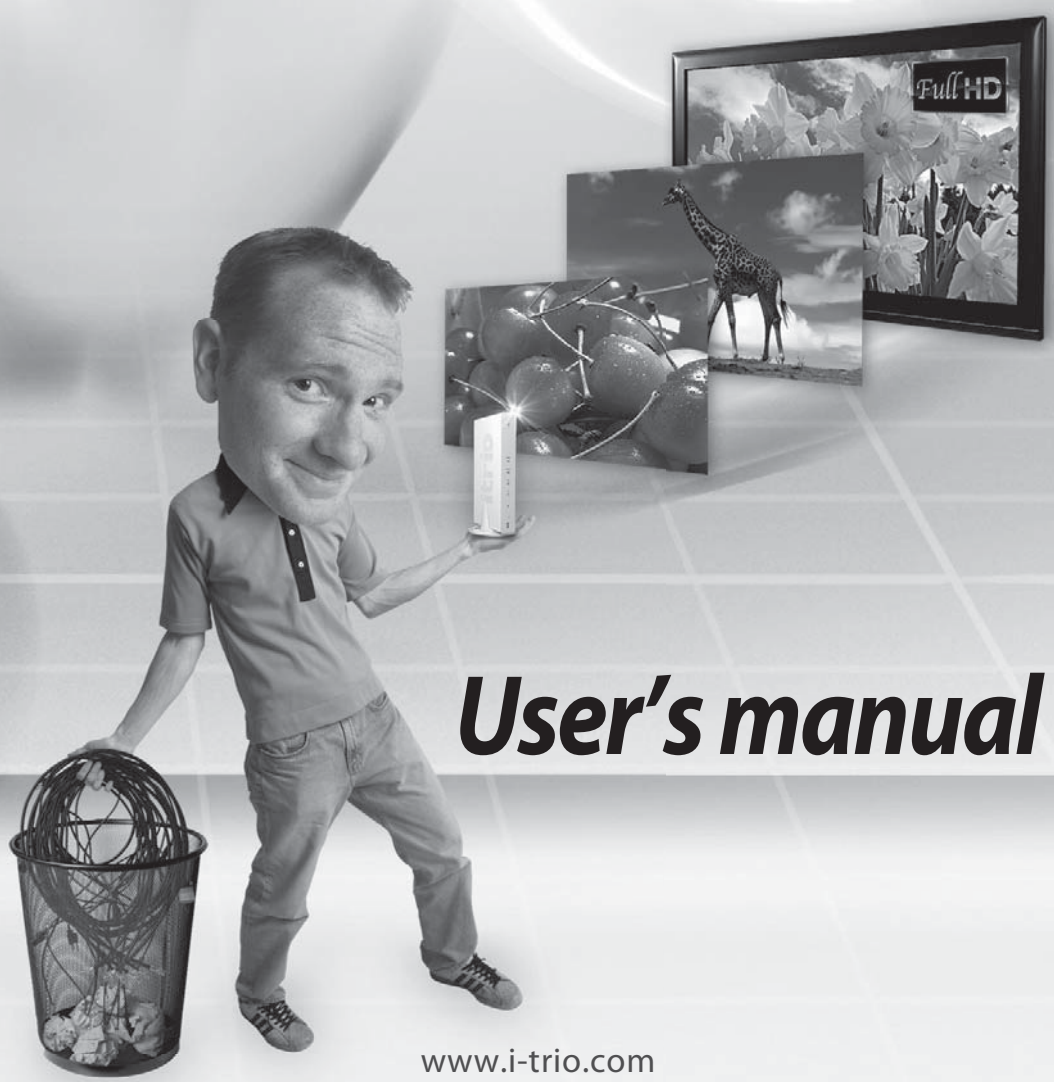
itrio

Wireless Full HD Sender

English



User's manual

www.i-trio.com

English

Wireless FULL HD Sender

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English

English

Caution for Safety

Please read this user's manual carefully before using the product.

If there is any strange sound, smoke or odor, pull the cable off immediately.
(It may cause fire or electric shock)

Do not disassemble.
(It may cause fire or electric shock.)

Do not put any sharpen object into the venting hole of the product.
(It may cause fire or electric shock.)

Ensure to plug the product firmly.
(It may cause overheating or fire if it plugs unstably.)

Ensure not to use the damaged cable.
(It may cause fire or electric shock.)

Keep the product away from heaters or stoves.
(It may cause a fire.)

Keep the battery of remote control out of reach of children.

Do not place the production on a bed, sofa or inside a closet that is not good for ventilation.
(It may cause overheating or fire.)

Do not use the product in close distance from the inflammatory substance or combustible spray.
(It may cause fire.)

Caution for Safety

Always wipe the product off with soft fabric, not water mop.
(Water may come inside the product through the venting hole, and it may cause electric shock.)

Keep clean the power plug and the outlet.
(Dirt may cause a short circuit and fire.)

Keep the product out of reach of children.

Don't unplug the power cord with a wet hand.
(It may cause electric shock.)

The heat and humidity may cause the damage to the remote control.

Unplug the power cord if you don't use the product for a long time.
(Dirt may cause heat, fire or electric shock.)

Ensure not to be damaged to the power cord.
(Damaged power cord may cause fire or electric shock.)

Introduction

English

■ Product Introduction

itrio, using WiFi wireless solution, is the device for sending 1920x1080 Full HD video sources to other location in your house. Once you connect Full HD video sources such as Set top box, Blu-ray player, Multi media player, DVD player or PC to the transmitter and connect the display device to the receiver, you can enjoy wirelessly Full HD video anywhere in your house.
itrio uses IEEE802.11n draft 2.0 standard WiFi technology for wireless connection. In case the wireless connection is interfered, you can use PLC (power line communication) modem without additional cable installation. You can also enjoy itrio through a LAN cable connection via LAN port.

■ Major Feature

- 1080p60 Full HD encoding/decoding with H.264 Baseline Profile (Level 4.2)

- Low latency
  - Latency of encoding-decoding in 1080p60 HD: Within 30ms

- Supports both digital(HDMI) and analog(RGB, Component, D-Sup) video/audio

- Supports Wireless or Wireline
  - IEEE 802.11n 5 GHz WiFi
  - Power line communication (PLC) modem
  - LAN connection

- Internal Antenna (Supporting MIMO)

- HDMI-v1.3 (HDCP-v1.1) compliant.

- Supports both DTV & VESA standards
  - DTV : 1920x1080i60/p60, 1280x720p60, 720x480i60/p60
  - VESA : WSXGA+(1680x1050), SXGA(1280x1024), WXGA(1280x800), XGA(1024x768), SVGA(800x600), VGA(640x480)

Package Contents

※ Before you use the product, check the following components are all present.

■ Components

Transmitter

Receiver

Stand1

Stand2

Remote Control

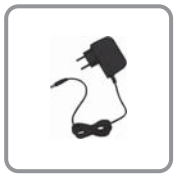
IR-Flasher

User's Manual

D-Sub
to component adaptor

■ Adapter by model

- HD-W100 / HD-L100


Adapter1

Adapter2

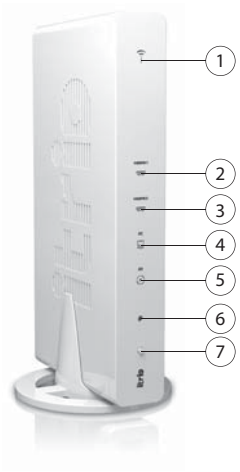
- HD-P100

PLC1

PLC2

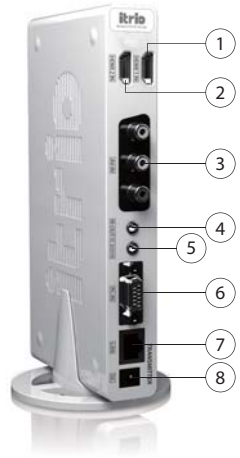
Operation Control & Function

■ Transmitter Front



	Description	Function
1	Power/Link LED	◦ Blink : System booting or establishing link between the transmitter and the receiver. ◦ Quick Blink : Software upgrading or wireless/LAN mode switching. ◦ On : Finish of link establishment is completed between the transmitter and the receiver.
2	HDMI1	It will be on when the HDMI1 port is selected for the video input. If the cable is not connected or video signal is not fed into properly, LED will blink.
3	HDMI2	It will be on when the HDMI2 port is selected for the video input. If the cable is not connected or video signal is not fed into properly, LED will blink.
4	PC	It will be on when the PC-IN port is selected for the video input. If the cable is not connected or video signal is not fed into properly, LED will blink.
5	AV	It will be on when the AV-IN port (composite or SCART) is selected for the video input.
6	IR window	IR receiving window from remote control.
7	Power and Source Button	◦ Press it shortly to turn the power on. ◦ When power on, - Press shortly : Press to select the video input source. Each press the power button will cycle through the available video input "HDMI1→ MHMI2→ PC → AV →HDMI1" in sequence. - Press longer : Press and hold more than 3 seconds to turn the power off.

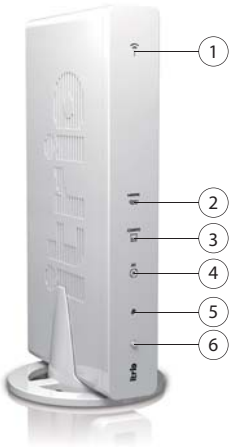
■ Transmitter Rear



	Description	Function
1	HDMI1-IN	HDMI 1 input port (correspond to 'HDMI1' on the remote control)
2	HDMI2-IN	HDMI 2 input port (correspond to 'HDMI2' on the remote control)
3	AV-IN	Composite or SCART input port (correspond to 'AV' on remote control)
4	IR-OUT	Connect IR Flasher to control external devices which are connected to the transmitter.
5	PC AUDIO-IN	Stereo Audio input port
6	PC-IN	Support component input through component gender.
7	LAN	It will be used for the following feature ◦ Connection to PLC modem ◦ Direct connection to LAN cable ◦ Connection to PC for the system configuration setting
8	DC	Power input port

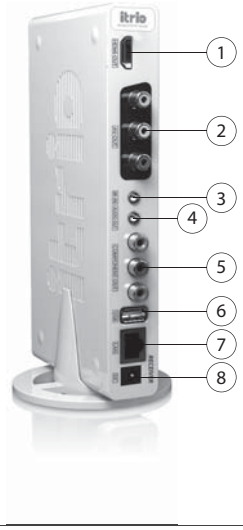
Operation Control & Function

■ Receiver Front



	Description	Function
1	Power/Link LED	◦ Blink : System booting or establishing link between the transmitter and the receiver. ◦ Quick Blink : Software upgrading or wireless/LAN mode switching. ◦ On : Finish of link establishment is completed between the transmitter and the receiver.
2	HDMI	It will be on when the HDMI-OUT port is selected for the video output.
3	COMPO	It will be on when the COMPONENT-OUT port is selected for the video output.
4	AV	It will be on when the AV-OUT port (composite or SCART) is selected for the video output.
5	IR window	IR receiving window from remote control.
6	Power and Source Button	◦ Press it shortly to turn the power on. ◦ When power on, - Press shortly : Press to select the video input source. Each press the power button will cycle through the available video input "HDMI → COMPO →AV → HDMI " in sequence. - Press longer : Press and hold more than 3 seconds to turn the power off.

■ Receiver Rear

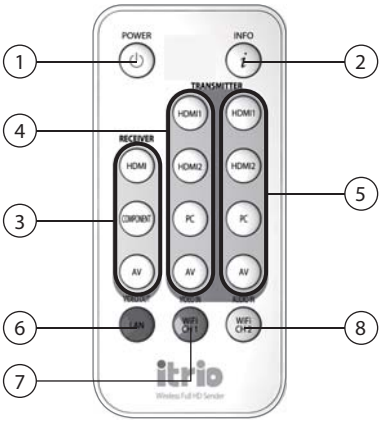


	Description	Function
1	HDMI-OUT	HDMI output port
2	AV-OUT	Composite or Scart output port
3	IR-IN	Connect additional IR Extender in order to extend receiving the remote control.(purchase separately)
4	AUDIO-OUT	Stereo Audio output port
5	COMPONENT-OUT	Component output port
6	USB	This USB port is for software upgrade. (For more information, please refer to Software upgrade on page 17.)
7	LAN	LAN cable will be used for the following feature ◦ Connection to PLC modem ◦ Direct connection to LAN cable ◦ Connection to PC for the system configuration setting
8	DC	Power input port

English

Operation Control & Function

■ Remote control

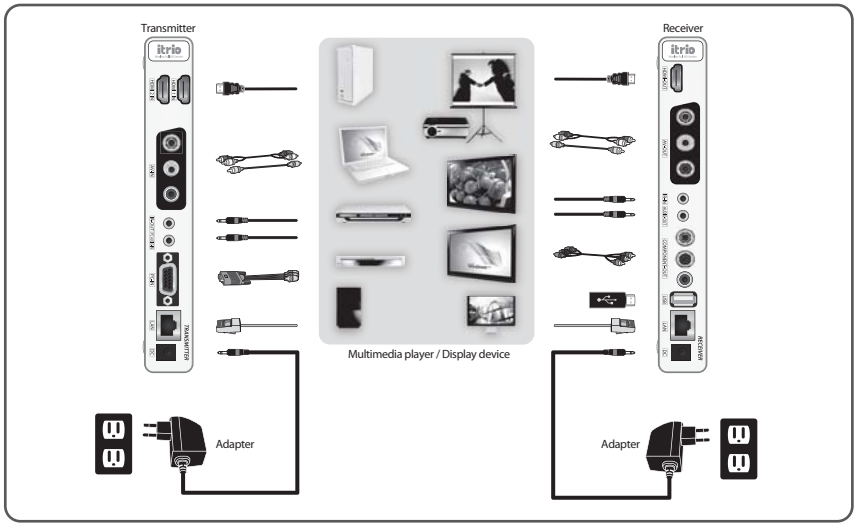


	Description	Function
1	POWER	To turn on/off the power of transmitter and receiver. ◦ Power on : - If you turn on TX or RX when power/Link LED is on , both devices will be power-on simultaneously within 10 seconds. - You have to turn on each of TX and RX separately when power/Link LED is off, it may takes around 1 min 30 seconds for booting up. ◦ Power off (press shortly) : When you turn off TX or RX, both devices will be power-off simultaneously and only power LED will be on. ◦ Power off (press more than 4 sec) : When you turn off TX or RX, both devices will be power-off simultaneously, and LED will be off. Power will be completely turned off. Note1. If the power is off abnormally, the user's configuration may not be saved.
2	INFO	Display the current resolution, input / output ports, channel, WiFi reception (1/5~5/5). (5/5 strongest, 1/5 weakest) It appears when you press and disappears automatically after around 20 seconds.
3	VIDEO OUT	Select VIDEO output port of the receiver (HDMI, COMPO , AV)
4	VIDEO IN	Select VIDEO input port on the transmitter (HDMI1, HDMI2, PC, AV)
5	AUDIO IN	Select AUDIO input port on the transmitter (HDMI1, HDMI2, PC, AV) Audio port is selected same with video port as a default. But you can select particular audio port using this button.
6	LAN(Red)	Select LAN (Cable) mode.
7	WiFi Ch1(Green)	Select WiFi (Wireless) mode, Ch1.
8	WiFi Ch2(Yellow)	Select WiFi (Wireless) mode, Ch2. Note 1. ⑥~⑧ are functioned HD-W100 model only. Note 2. ⑥~⑧ are applied only when you press the button more than 5 seconds. On the normal link stage, if you change either TX or RX both device will be changed simultaneously. Otherwise you should change on TX and RX separately. (Info screen appears on the display for 3 seconds if it changes appropriately. Note 3. It will be rebooting when you change for ⑥~⑧ . Power/Link LED will blink in a short time and reboot. Note 4. Link may be interfered caused by wrong setting or malfunction of ⑥~⑧ button. In this case, please select desired communication mode (LAN/WiFi) or channel to each transmitter and receiver using remote control.

* TX : Transmitter, RX : Receiver

Installation

■ Transmitter / Receiver Installation



1) Connect the cable of the desired devices (multimedia player and display device) to the port of the transmitter/ receiver and turn the power on.

2) Connect the power adapter, then the power will be turned on automatically.

3) During the boot time, LEDs on the front panel of transmitter and receiver blink .

4) After booting, Power/Link LED blinks until the link between the transmitter and the receiver is up.

5) In/output port setting of the transmitter and the receiver is controlled by remote control or button setting on the product manually.

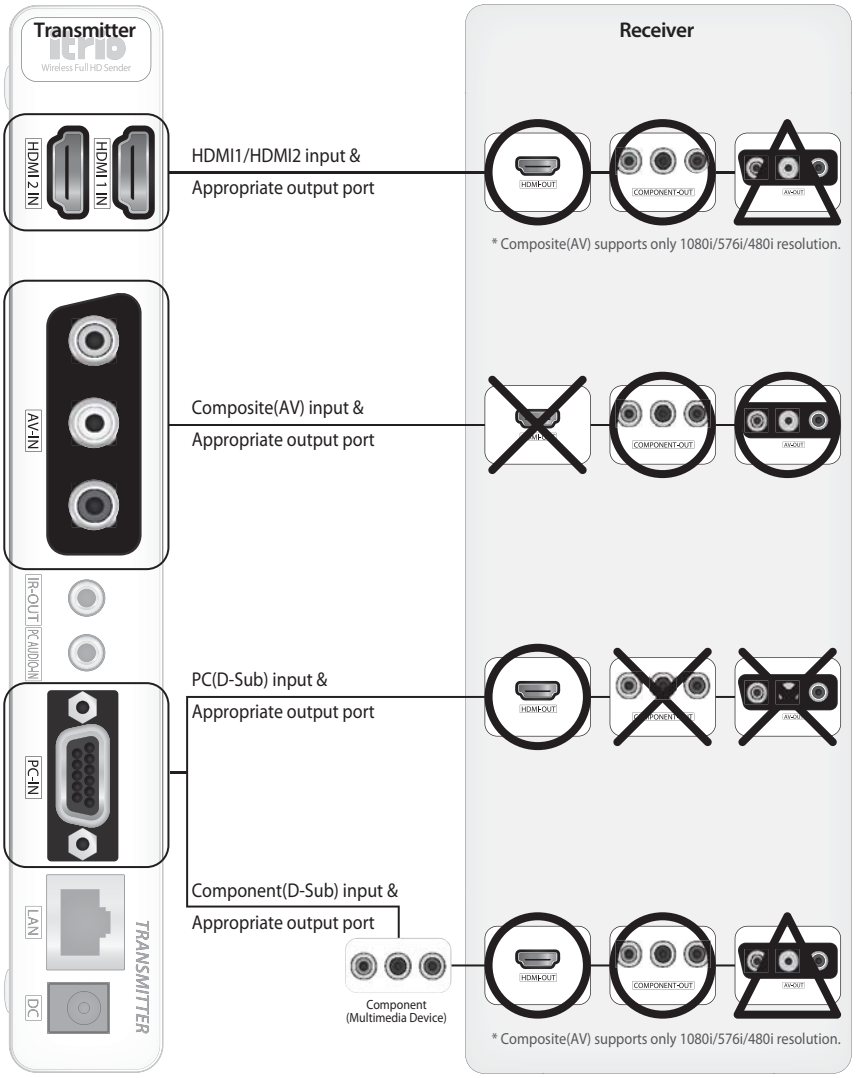
6) When all the process is completed, Power/Link LED activates without blinking, and the video will appear on the screen 3~5 seconds later.

7) If wireless or cable link is affected by external factors, Power/Link LED may blink again.
(Please reconnect the cable and power)
* Note1 : It is recommended to connect HDMI cable to the transmitter and the receiver, before power on.

English

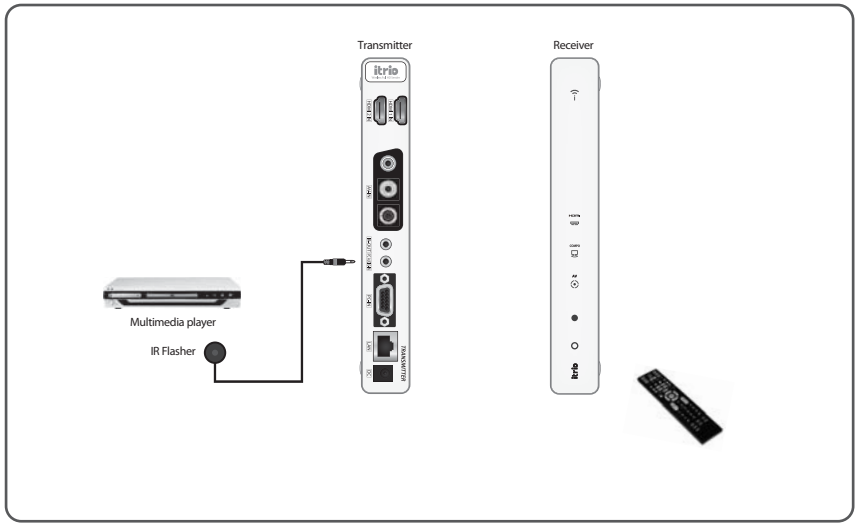
Installation

How to make link between the transmitter and the receiver.



Installation

■ IR Flasher Installation



From the receiver, you can remotely control the multimedia player which is connected to the transmitter.

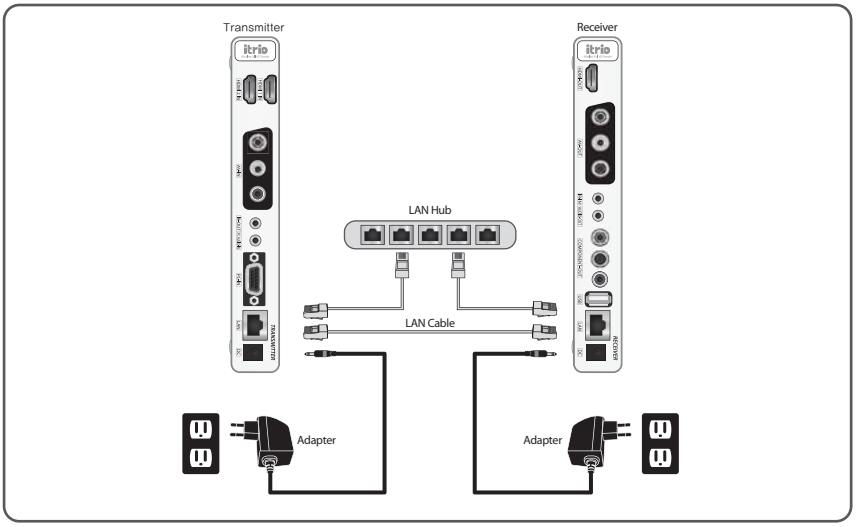
1) Connect IR Flasher to IR-IN of the transmitter.

2) Place the end point of IR Flasher to near IR window of multimedia players.

3) Control multimedia player remotely by pointing remote control of multimedia player to IR window of the receiver.

Installation

■ LAN Installtion



1) Connect LAN cable directly between the transmitter and the receiver, or to the IP router/LAN hub.

2) When you connect the transmitter and the receiver directly by UTP LAN cable, input the both end of LAN cable to the each LAN port of the product. Then, turn the power on.

3) When you connect to the IP router/L2 switching hub, please follow the process below.

   a. Please check the IP address of the device.

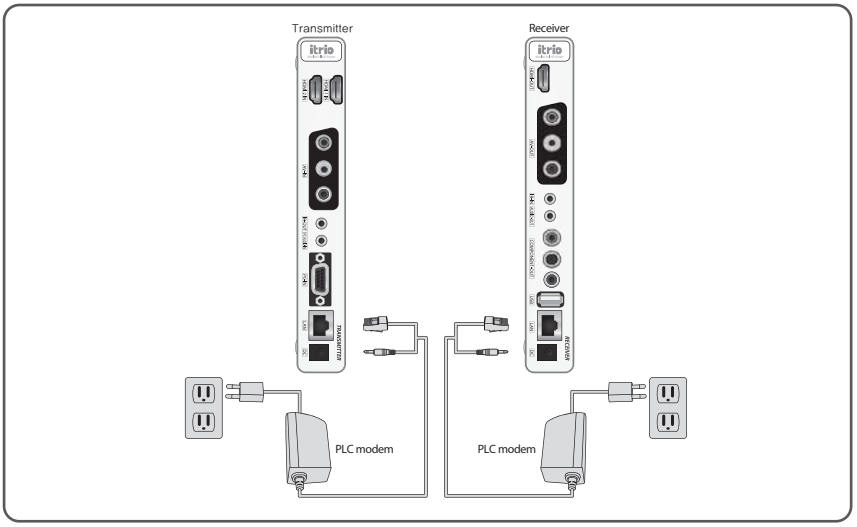
   b. As a default configuration, transmitter's IP address is 192.168.0.151, and receiver's is 192.168.0.152.
   The product has simple built-in web server inside. So, you can check and change the configuration. You can connect the product to the PC via LAN cable and enter the IP address of the device on the web browser. At any time, you can change the IP configuration as a default by factory set. (please refer to the Factory Reset on Page 16.)

   c. When the default IP address of the transmitter/receiver are not used in your current network, just connect the LAN cable to the IP router or LAN hub and turn the power on.

   d. When the default IP address of the transmitter/receiver are already being used, you have to set the available IP address to the transmitter and the receiver separately.
   Connect the product to the PC via LAN cable, and enter new IP address of the transmitter/receiver respectively.
   After setting new IP address, please follow the process.
   For more information, please refer to the instruction at website (www.i-trio.com)

Installation

■ PLC Installation



1) Connect the LAN cable of the PLC modem1 to the LAN port of the transmitter.

2) Connect the Power cord of the PLC modem1 to the DC Power of the transmitter.

3) Connect LAN cable of PLC modem2 to LAN port on the back of the receiver.

4) Connect the Power output of the PLC modem2 to the DC Power of the receiver.

*Please refer to the detailed PLC modem guide which is provided with HD-P100 model.

English

Product Specification

■ Specification

Video Compression	H.264 Baseline Profile Level 4.2
System Latency	Less than 30 ms delay between Transmitter and Receiver
Digital Video IN/OUT Interface	HDMI-v1.3 compliant, Up to 24 bit RGB or YUV (4:2:2)
Analog Video Input Interface	RGB Video with D-Sub, Component Video Input, Composite Video Broadcast Signals (CVBS)
Analog Video Output Interface	YPbPr Component, Composite Video Broadcast Signals (CVBS)
Input Video Ports	2 x HDMI, 1 x RGB Analog with D-Sub, 1 x CVBS with RCA
Output Video Ports	1 x HDMI, 1 x YPbPr RCA, 1 x CVBS with RCA
Video Resolutions (partial list)	480i/p, 720p, 1080i and 1080p (24fps/30fps/60fps)
Digital Audio IN/OUT Interface	2 Ch Linear PCM, DTS 5.1 Ch., AC3 5.1 Ch.
Analog Audio IN/OUT Interface	RCA stereo jacks & Mini stereo headphone jacks
Analog Audio Transmission	48 kHz sampling with 16bits resolution
Input Audio Ports	2 x HDMI, 1 x Mini Stereo Headphone jack, 1 x Stereo RCA jacks
Output Audio Ports	1 x HDMI, 1 x YPbPr RCA, 1 x CVBS with RCA
Radio Power	63mW (+18dBm)
Modulation	IEEE 802.11n: OFDM
Frequencies Supported	5.15 ~ 5.25 GHz
Bandwidth	40 MHz
Antenna	2T x 3R, 2 internal antenna and optional 1 external antenna
Security	802.1x, 802.11i, WPA2, WPA and WEP 64/128 TKIP AES
WPS	Wireless Protected Setup for easy set up and security configuration
Ethernet LAN	10/100 BASE-TX
IR in Transmitter	IR Receiver (front side) for itrio's IR Remote Controller IR Flasher (rear side) for for others' IR Remote Controller Blasting
IR in Receiver	IR Receiver (front side) for itrio's IR Remote Controller and optional IR Extensive Receiver (rear side)
Power Supply	12V/2.0A DC (US/EU standards, CE/FCC/UL certified)
Dimensions (mm)	28(W) x 195(H) x 112(D)
Weight (g)	Transmitter : 270g , Receiver : 270g
Color	White/Black
Operating Temperature	Operating from -10℃ ~ 50℃

Product Specification

■ Video Format Supported

Video Standard	Resolutions	itrio Transmitter			itrio Receiver		
		HDMI	D-SUB	AV(CVBS)	HDMI	COMP	AV(CVBS)
VESA Format (PC standard)	640 x 480p60	O	O	X	O	X	X
	640 x 480p70	O	O	X	O	X	X
	640 x 480p85	O	O	X	O	X	X
	800 x 600p60	O	O	X	O	X	X
	800 x 600p70	O	O	X	O	X	X
	800 x 600p85	O	O	X	O	X	X
	1024 x 768p60	O	O	X	O	X	X
	1024 x 768p70	O	O	X	O	X	X
	1024 x 768p85	O	O	X	O	X	X
	1152 x 864p60	O	O	X	O	X	X
	1152 x 864p70	O	O	X	O	X	X
	1152 x 864p85	O	O	X	O	X	X
	1280 x 800p60	O	O	X	O	X	X
	1280 x 960p60	O	O	X	O	X	X
	1280 x 960p70	O	O	X	O	X	X
	1280 x 960p85	O	O	X	O	X	X
	1280 x 1024p60	O	O	X	O	X	X
	1360 x 768p60	O	O	X	O	X	X
	1440 x 900p60	O	X	X	O	X	X
	1600 x 1200Rp60 1)	O	O	X	O	X	X
	1600 x 900p60	O	X	X	O	X	X
	1680 x 1050p60	O	O	X	O	X	X
DTV Format (TV standard)	720 x 480I60(NTSC)	O	O	O	X	O	O
	720 x 576I50(PAL)	O	O	O	X	O	O
	720 x 480p60	O	O	X	O	O	X
	720 x 576p50	O	O	X	O	O	X
	1280 x 720p50	O	O	X	O	O	X
	1280 x 720p60	O	O	X	O	O	X
	1920 x 1080i50	O	O	X	O	O	O
	1920 x 1080i60	O	O	X	O	O	O
	1920 x 1080p24	O	O	X	O	X	X
	1920 x 1080p25	O	X	X	O	X	X
	1920 x 1080p30	O	X	X	O	X	X
	1920 x 1080p50	O	O	X	O	X	X
	1920 x 1080p60	O	O	X	O	X	X

Note 1. 1600 x 1200p60 reduced format

Note 2. itrio just relays the input format of the video from the transmitter to the receiver. itrio does not change the video format. If you want to change output format, you should change input format on the external device which is connected to the transmitter.

Note 3. HDMI output of the receiver doesn't support AV(NTSC:480i or PAL:576i) input signal from the transmitter. Please use component output terminal of receiver.

Note 4. Among HDMI input signal, only 1080i/480i/576i input video signal support AV output. Other HDMI input signal doesn't support AV output of the transmitter. Please use HDMI or Component output terminal of the transmitter.

Note 5. PC that is connected with D-Sub of the transmitter support only HDMI output of the receiver.

Product Specification

■ Audio Format Supported

1) Digital Audio
   - Digital compressed audio : AC-3 Dolby Digital, DTS (Pass Through)

2) Analog audio
   - 16bit 2-channel linear PCM (44.1kHz & 48kHz)

■ Change WiFi Frequency

1) If there are the devices that use same WiFi frequency, the receiver's output video may be distorted because of frequency interference. In this case, you can change WiFi frequency in order to avoid interference.

2) If you press the button (WiFi Ch1 / WiFi Ch2) of the remote control over 5 seconds, WiFi frequency will be changed and system will be rebooted.

3) If the transmitter and the receiver are linked appropriately, it is fine to change WiFi frequency on the one device. However, if the transmitter and the receiver are not linked, WiFi frequency should be changed on each of transmitter and receiver respectively.

WiFi Channel	Frequency Use	Remote Control Button
Ch 1	5.19 GHz(WiFi Ch38)	WiFi Ch1 (Green)
Ch 2	5.23 GHz(WiFi Ch46)	WiFi Ch2 (Yellow)

Note1. This Function is applied to only wireless model(w).

■ Factory Reset

1) With pressing the power button of the transmitter or the receiver, connect the power.

2) Once you press the power button for 3 seconds, all the LED will blink and the system setting is set to be factory mode.

Product Specification

■ Software upgrade

1) Download up-to-dated software (itrio.img) at web page (www.i-trio.com)

2) Store this S/W in "root directory" of USB memory.

3) Plug USB memory into the USB port of the receiver.

4) With LEDs blinking, the receiver and the transmitter will be upgraded in sequence. (It takes around 5 minutes)

5) When the refreshing is completed, the product will be rebooted.

Important Notice)

a. Update is available only when the transmitter and the receiver operate normally.

b. NEVER remove the power during update.
(If the power is off during upgrading, the product will not work again.)

c. During the update, screen does not display the video.

d. When the product reboots again, you can remove the USB Memory.

■ Q & A

1) Q : Power/Link LED keeps blinking and the transmitter and receiver are not linked appropriately.

A : Communication method (LAN/WiFi) or channel may not be set appropriately. Please set the desired communication method and channel by referring 4-5). ⑥~⑧. Especially, when the system is wireless mode, make the transmitter and the receiver closer, please check if the link is completed pressing Ch1 and ch2 for over 5 seconds and, then, make them locate near TV. If link is established appropriately when they are close but LED is blinking when they are apart, it means wireless signal is weakened by some reason or it may be interfered by a wireless device which use the same frequency in the near place.

2) Q : When itrio is turned on first time, TV screen doesn't show clearly and after a while turn into clear picture. Is it broken?

A : It is not a broken product. When the receiver receives the video data, there is noise on screen if the receiver couldn't receive the essential information. The screen will be shown clearly soon.

3) Q : Is it possible to use video output from HDMI splitter?

A : Yes, it is. However, low quality HDMI splitter may convey the video signal information inappropriately or the electric feature of HDMI video signal form the HDMI splitter may not satisfy the standard. Please use it carefully.

For the further information, please refer to our web page 'www.i-trio.com'

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is con-nected.

• Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

IMPORTANT NOTE:

FCC RF Radiation Exposure Statement:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOIDTHE USER﹐S AUTHORITY TO OPERATE THE EQUIPMENT.

IMPORTANT Safety Instruction:

CAUTION

To reduce the risk of electric shock, do not remove the top cover (or the rear section).
No user serviceable parts inside, refer servicing to qualified personnel.

This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure-voltage that may be sufficient to constitute a risk of sock.

This symbol, wherever it appears, alerts you to the important operating and maintenance instructions in the accompanying literature. Please read the manual.

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this equipment near water.

6) Do not using near any heat sources such as radiators, heat resisters, stove, or other equipment that produce heat.

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

European Union Regulatory Notice

Compliance with these directives implies conformity to harmonized European standards (European Norms) that are listed in the EU Declaration of Conformity issued by HP for this product or product family. This compliance is indicated by the following conformity marking placed on the product.

The wireless telecommunications functionality of this product may be used in the following EU and EFTA countries:

Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and United Kingdom.

Products with 2.4-GHz wireless LAN devices

Italy :

For private use, a general authorization is required if WAS/RLAN's are used outside own premises. For public use, a general authorization is required.

Russian Federation

e.i.r.p 100mW Permitted to use only for indoor applications, closed industrial and warehouse areas, and on board aircraft.

1. permitted to use for local networks of aircraft crew service communications on board aircraft in area of the airport and at all stages of flight.
2. permitted to use for public wireless access local networks on board aircraft during a flight at the altitude not less than 3000m

CE RF Radiation Exposure Statement:

Caution This equipment complies with European RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.