

VGA CAT5 Extender

Extend Video+Audio Signal

Up to 900 Meters



User's Manual

Transmitter	Receiver	Repeater
EXVA-12L	EXVA-220R	EXVA-321X
EXVA-114L	EXVA-320R	
EXVA-118L		

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Please read this manual thoroughly and follow the **Installation** procedures to prevent any damage to the Unit or any connecting device

- * To prevent damages to your installation, it is important that all devices are properly grounded.
- * The final specifications are based on the actual product.
- * Features and functions may be added or changed after the manual was written. Please visit our website to download the latest version of manual for reference.

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----- ***Introduction***

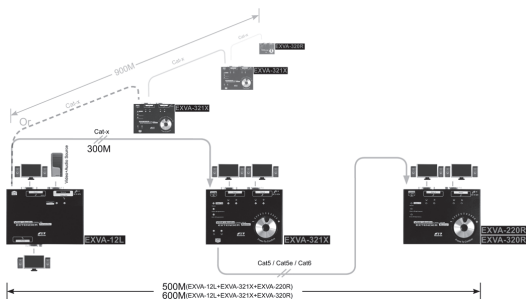
Overview

The “**Video+Audio CAT5 Extender**” pair consists of one **Local Unit (Transmitter)** and one **Receiver Unit** featuring to transmit **Video+Audio** signals with the resolution up to **WUXGA (1920 x 1200) / Full HD (1920 x 1080) / UXGA (1600 X 1200)** via **CAT5 cables**. The **Local Unit** duplicates the Video+Audio signals from one input source port to one or two local output port(s) and transmits (duplicates) the Video+Audio signals to 1/4/8 **Receivers / Repeaters** (Remote Unit) via the CAT5 connector; the **Remote Unit** broadcasts the signal through two local output ports. A handy **jog wheel** on the top panel allows users to manually adjust audio volume and video signal on Gain (Brightness), Equalizer (Sharpness) and RGB skew in a way that is simple and convenient. Better yet, the signal transmission distance can be extended for another 200/300 meters by adding one more **Repeater Unit** in between the **Transmitter** and **Receiver**, and up to two **Repeater Units** can be added in between to achieve the maximum transmission distance up to **900 meters**.

The “**Video+Audio CAT5 Extender**” pair is a dedicated design with the characteristics of Flexibility in extending video signals at high resolution over long distances, Convenience in manually and intuitively adjusting audio and video signal via a built-in jog wheel, Security in allowing to locate computers in the back room or secure location away from the display and protect it from unauthorized use or public display, and Noise Reduction in removing the noisy computer from the broadcast studio for the perfect and uninterrupted sound reproduction. This makes it a great solution for public broadcasting, exhibits, retail stores, courtrooms, stock tickers, and many more applications.

Features

- Compatible with most of the popular screen resolution of WUXGA (1920 x 1200) / Full HD (1920 x 1080) / UXGA (1600 X 1200)
- Transmit the superb quality of VGA+Audio signals via CATx technology to 300 meters away or up to 900 meters with 2 repeaters in between
- Unique Equalizer (sharpness) / gain (brightness) adjustment via built-in jog wheel for optimal video quality
- Distinctive RGB skew adjustment via built-in jog wheel for the best video quality
- Independently turn ON/OFF the audio & video of local ports respectively (8 levels of fine tune available for audio volume adjustment)
- Automatically detecting and indicating the source video signal
- EDID Copy function makes the optimal high resolution for your application
- Support the surge protection
- Beeps confirmation for the built-in jog wheel control makes the operation easier and cross-check
- Simple LED indication for easy status monitoring
- Ideal for public broadcasting, exhibits, retail stores, courtrooms, stock tickers, bus stations, and so on



Package Content

Package For One Set	Quantity
Extender Local Unit (Transmitter)	1
Extender Receiver Unit	1
Power Adapter with necessary AC Cord OR Plug-in Power Adapter	2
Ground Wire	2
User Manual	1
Foot Pad Set	1

Package For One Unit	Quantity
Extender Unit (Repeater)	1
Power Adapter with necessary AC Cord OR Plug-in Power Adapter	1
Ground Wire	1
User Manual	1
Foot Pad Set	1

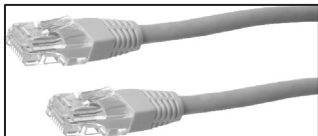
Optional

- Audio Cable
- VGA Cable



----- **CAT5 Cable**

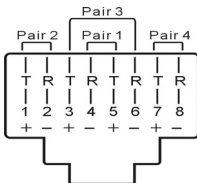
The Extender Pair requires a piece of UTP (Unshielded Twisted Pair) CAT5 cables.



The cable must be wired according to the EIA/TIA 568B industry standard as shown below.

Pin	Wire Color	Pair
1	White/Orange	2
2	Orange	2
3	White/Green	3
4	Blue	1
5	White/Blue	1
6	Green	3
7	White/Brown	4
8	Brown	4

NOTE: CAT5, CAT5e or CAT6 cables are applicable to the extender pair.



The above diagram shows the RJ45 connector of a CAT5 cable with its metal contacts facing up.

----- **Installation**

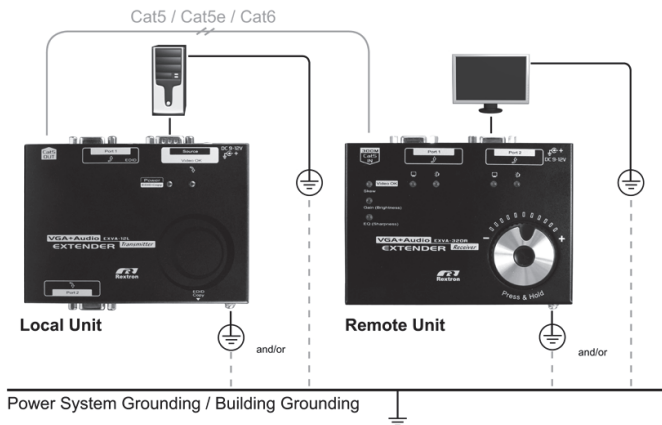


WARNING

- Prior to the installation, ensure to power off all devices that will be connected to this system.
- Ensure that all devices you will connect are properly grounded.
- Place cables away from fluorescent lights, air conditioners, and machines that are likely to generate electrical noise.
- Avoid pressing or rotating the jog wheel too hard; excessive force on the jog wheel may cause it sluggish in response or damage.

Grounding

To prevent any damage to the product or any connecting device, it is important to make sure that the devices are properly grounded.

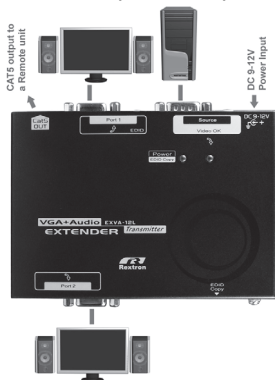


Connection Pattern

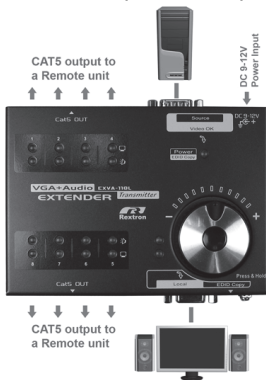
The following figures show typical applications of **Extender** series. The model you have purchased may be slightly different from those described in the illustrations.

(Video+Audio) Transmitter

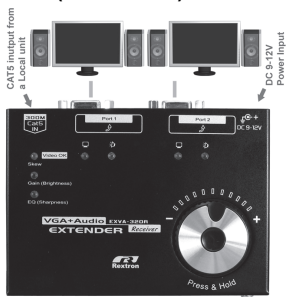
Local Unit (EXVA-12L)



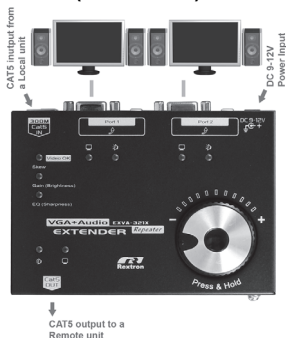
Local Unit (EXVA-118L) (optional)



**(Video+Audio) Receiver
(EXVA-320R)**



**(Video+Audio) Repeater (optional)
(EXVA-321X)**

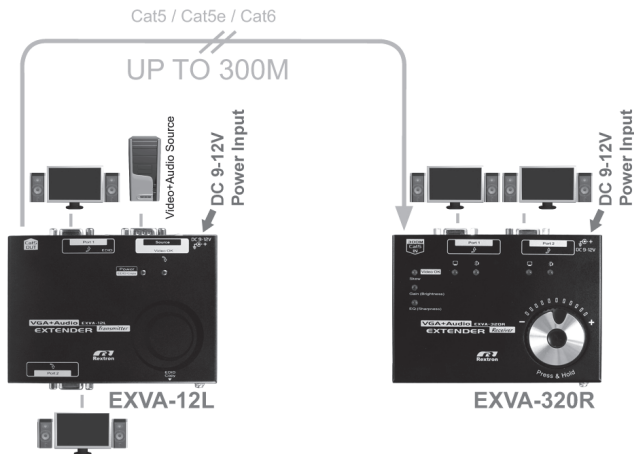


Complete Connection Patterns

NOTE: Except the CAT5 cable, Video source, Audio source and power supplies, not all devices shown below are required for the pair to operate.

Pattern 1: Transmitter Unit + Receiver Unit

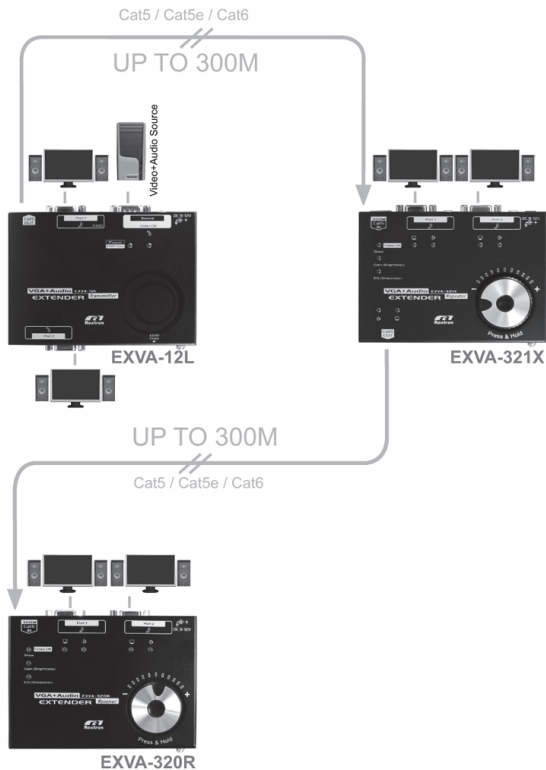
Achieve the total signal transmission distance of 300 meters as the diagram shown below.



Example of EXVA-12L and EXVA-320R

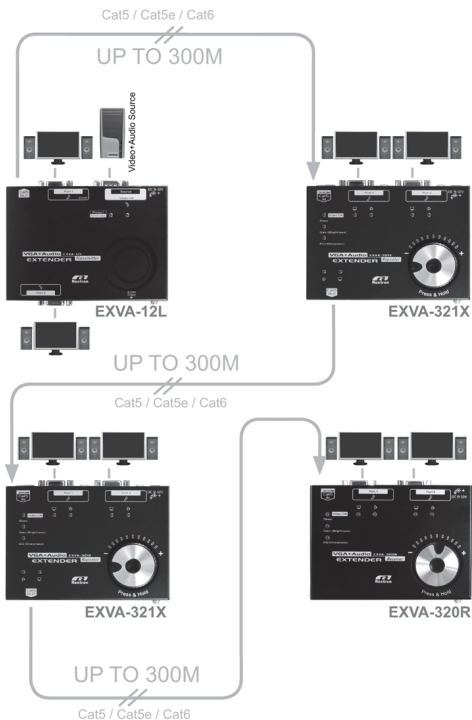
Pattern 2: Transmitter Unit + Repeater Unit + Receiver Unit

Achieve the total signal transmission distance of 600 meters.



Pattern 3: Transmitter + Repeater + Repeater + Receiver

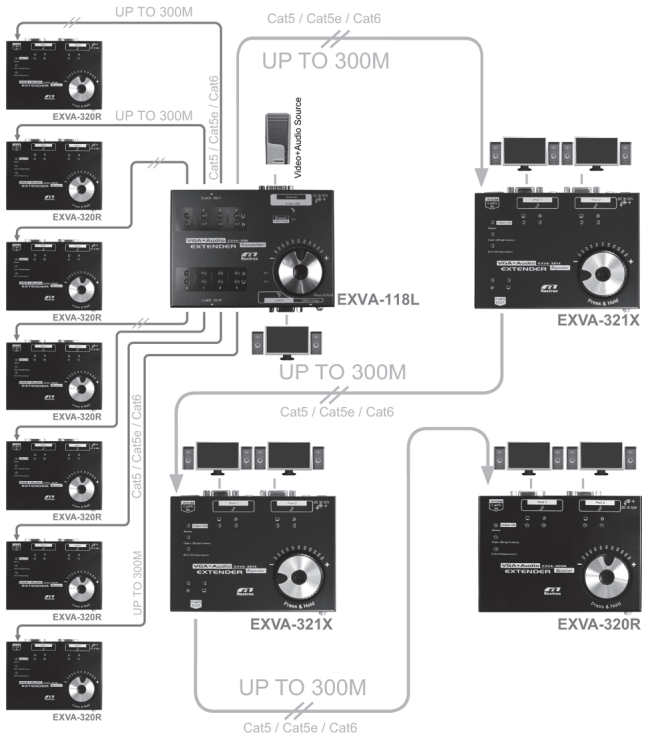
Achieve the total signal transmission distance of 900 meters as the diagram shown below.



Example of EXVA-12L, EXVA-321X, and EXVA-320R

Pattern 4: Transmitter + Repeater + Repeater + Receiver

Achieve the total signal transmission distance of 900 meters as the diagram shown below.



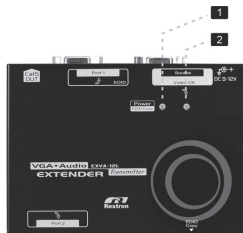
Example of EXVA-118L, EXVA-321X, and EXVA-320R

----- Operation


LED Display

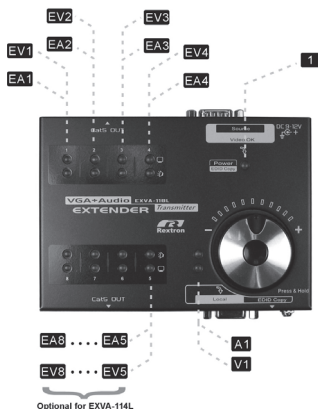
Local Unit (Transmitter)

EXVA-12L	
1	Green: Power On Flashing: EDID Copy Status
2	Blue: Video Source detected




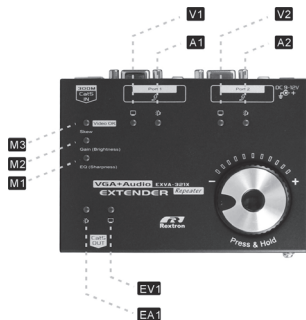
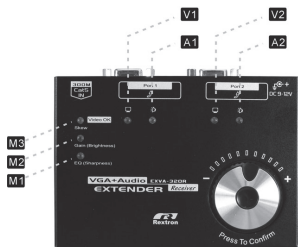
Local Unit (Transmitter)

EXVA-114 / 118L	
1	Green: Power On Blue: Video Source detected Flashing: EDID Copy Status
V1	Video Output Signal
A1	Volume Indication 
EVx	Cat5 Video Output Signal
EAx	Cat5 Audio Output Signal



**Receiver Unit (EXVA-220R / 320R)
/Repeater Unit (EXVA-321X)**

V1,V2	Video Output Signal
A1,A2	Volume Indication 
M1	Equalization Mode Indication
M2	Gain Mode Indication
M3	Green: Power On
	Blue: Skew Mode for Blue
	Green: Skew Mode for Green
EV1	Cat5 Video Output Signal
EA1	Cat5 Audio Output Signal



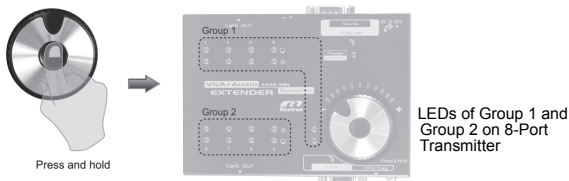
LED Selection

Transmitter Unit for 4-Port and 8-Port Models

There is a jog wheel on the top panel of 4/8-port **Transmitter Unit**, which can be used to turn on/off the video signal output adjust the volume. A set of LEDs on the top panel of the Unit is divided into two groups (as the figure shown below), namely,

“**Group 1**” that includes the video-audio pair LEDs on each of the local *output port* and remote (CAT5) *output ports 1, 2, 3, 4.* (for both 4-Port and 8-Port models)

“**Group 2**” that includes the video-audio pair LEDs on each of the remote (CAT5) output ports 5, 6, 7, 8. (available for 8-Port model only)



● **Group Selection** (for 8-Port model only)

Step 1. Power on the Unit, the LED “Power/EDID Copy” will illuminate GREEN, and the rest of the LEDs on the Unit will illuminate ORANGE.

Step 2. Connect the source computer to the input port on the Unit, the LED “Power/EDID Copy” will turn to BLUE indicating that the signal input is activated and the Unit is ready for configurations.

Step 3. Press and Hold the jog wheel for about 2 seconds, the LEDs on both groups will flash ORANGE alternatively; then, users can release the jog wheel to select the desired group.



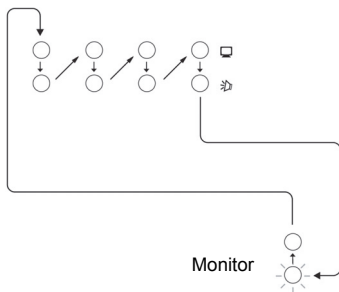
● **Port Status Selection** (Video/Audio)

Each output port associates with a pair of video and audio LEDs on the top panel of the Unit. Within about 20 seconds after one group selected, users can press the jog wheel once to switch the status port between video/audio.

For instance, the video LED on the remote output port 2 flashes ORANGE indicating that the video signal of the output port 2 is selected. Before time out (20 seconds), users can press the jog wheel once to switch the status port from video to audio on the port 2.

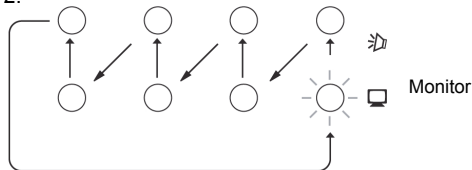
- **Group 1 Output Signal Selection**

As the figure shown below, the first LED (Monitor) flashes indicating that the current output video signal is selected. Users can press the jog wheel once at a time to switch port in sequence between video/audio among the output ports of Group 1.



- **Group 2 Output Signal Selection (for 8-Port model only)**

As the figure shown below, the first LED (Monitor) flashes indicating that the current output video signal is selected. Users can press the jog wheel once at a time to switch port in sequence between video/audio among the output ports of Group 2.



NOTE: The Unit will automatically resume Stand By mode, if there is no jog wheel activity detected **within 20 seconds** since the last activity

Receiver/Repeater Unit

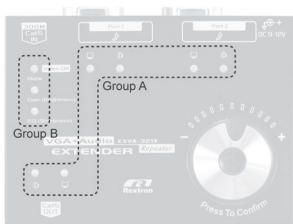
There is a jog wheel on the top panel of **Receiver Unit** and **Repeater Unit** respectively, which can be used to turn on/off the video signal output, adjust the volume or adjust the video compensation. A set of LEDs on the top panel of the Unit are divided into two groups, namely,

“**Group A**” that includes the video-audio pair LEDs on local *output port(s)* and remote (*CAT5*) *output port(s)*. (The remote output ports are available for **Repeater Unit** only)

“**Group B**” that includes the LEDs of *Skew* (GBR), *Gain* (Brightness), and *EQ* (Sharpness).



Press and hold



● Group Selection

Step 1. Power on the Unit, the Skew LED will illuminate GREEN indicating that the power is on and the Unit is ready for configurations.

Step 2. Press and Hold the jog wheel, the LEDs of group A and group B will flash alternatively, and then release the jog wheel to select the desired group. In general, users need to access to Group A for selecting an output port (video or audio) first.

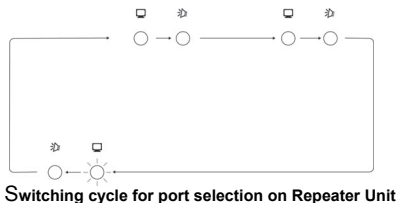


Press and hold the jog wheel

NOTE: The Unit will automatically resume Stand By mode (Group A and B flashing alternatively), if there is no jog wheel activity detected **within 20 seconds** since the last activity

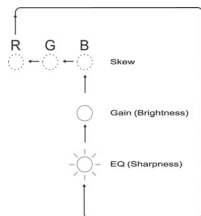
● **Group A** Output Signal Selection:

As the figure shown below, the first LED (Monitor) flashes indicating that the current output video signal is selected. Users can press the jog wheel once at a time to switch one port selection in sequence among the LEDs of group A.



● **Group B** EQ/Gain/Skew Status Selection:

As the figure shown below, the first LED (EQ) flashes indicating that the sharpness adjusting is activated, and users can press the jog wheel once at a time to switch one status selection in sequence among the LEDs of group B.

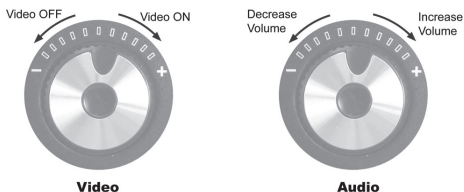


NOTE: The Skew LEDs is a triple LED indicating three skew status such as **B** (Blue), **G** (Green) and **R** (Red)

Output Signal (Video/Audio) Adjustment

● **Group (1,2,A)** Output Signal Adjustment:

When one of the output statuses (video/audio) among these groups is selected, the selected LED will flash indicating the activation; users can turn the jog wheel by following the clockwise / counterclockwise direction to turn on/off the video signal or to increase / decrease the volume as the diagram shown below



The selected audio LED will emit ORANGE light according to the volume strength. When users turn the jog wheel clockwise, the volume increased and the ORANGE light strengthened, and vice versa. The diagram below provides a comparison between the LED light strength and volume of OFF ~ 7 levels.



NOTE: The CAT5 audio output signal on the Repeater Unit is not tunable

NOTE: *Exit the mode* through either one of the operation below.

- Leave the Unit idle (no activity) for **20 seconds**.
- Press and Hold the jog wheel for two seconds.

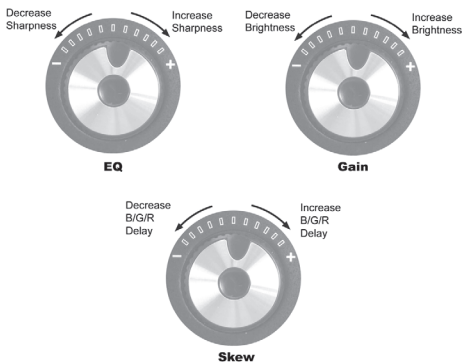
Video Compensation

(Receiver / Repeater Unit only)

● **Group B** EQ / Gain / Skew Adjustment on Receiver / Repeater Unit:

To optimize the video signal associated with various cable lengths, users may adjust the video compensation via the jog wheel on the Receiver / Repeater Unit.

Users can adjust the selected signal status (Equalization / Gain / BGR Skew) by turning the jog wheel clockwise / counterclockwise. For example, tune the jog wheel in counterclockwise direction as the diagram shown below to decline the selected signal status, and vice versa.



NOTE: *Exit the mode* through either one of the operation below.

- Leave the Unit idle (no activity) for **20 seconds**.
- Press and Hold the jog wheel for two seconds.

EDID Copy

In some cases users may suffer from display problems due to incorrect EDID communication between the display monitor and the PC graphics card or inappropriate EDID data programmed by display manufactures. The **Transmitter Unit** provide “EDID Copy” feature that allows the **Unit** to read the necessary EDID information from the attached video display and then provide it at all times to the attached computer. If no new EDID information is available from a display, a default profile in the **Transmitter Unit** is automatically provided instead.

To efficiently achieve EDID communication when the computer is booting up, users are required to implement the EDID Copy on the **Unit** before the operations begin as described below:

- **Use (Load) default setting :**

When using a monitor (without EDID compliant) for display. The Unit will automatically select viable EDID data from the Unit’s default EDID profile to set the EDID information up. Users can achieve this EDID Copy by performing the following steps:

Step 1. Press and Hold the button “EDID Copy” on the **Unit**.

Step 2. Plug in the provided power cord to power up the **Unit**. Release the button “EDID Copy” RIGHT AFTER one confirmation beep. The power LED lighting steady GREEN indicating that the EDID copy (communication) is completed.

Step 3. Connect the monitor(s) to the output port on the **Unit** and power on the monitor. The **Unit** is ready to operate now.

- **Copy (new) monitor EDID (for Port 1 or Local Port only):**

When using an EDID compliant monitor for display, the **Unit’s** EDID Copy function will enable the EDID communication between the monitor and **Unit** for optimal video quality. Users can achieve this EDID communication by following the instructions below:

Step 1. Plug in the provided power cord to power “ON” the **Unit**.

Step 2. Connect the monitor (EDID compliant) to the **Local** output “Port 1” on the **Unit**.

Step 3. Press and Hold the button “EDID Copy” on the side panel of the **Unit** for about TWO Seconds. Release button “EDID Copy” RIGHT AFTER two beeps of confirmation followed indicating that the EDID Copy is completed.

Otherwise, if one long beep occurs, it means that the display monitor is not properly connected to “Port 1” on the **Unit**. Please repeat Step2 to 3 again in this case.

----- Appendices

Specifications

Transmitter		EXVA-12L	EXVA-114L	EXVA-118L	
Input	Video	HDB15 x 1			
	Audio	3.5mm Ear Jack x 1			
Output	Video Connector	HDB15 x 2	HDB15 x 1	HDB15 x 1	
	Audio Connector	3.5mm Ear Jack x 2	3.5mm Ear Jack x 1		
	Extension	RJ-45 x 1	RJ-45 x 4	RJ-45 x 8	
Front Panel LEDs	Power/EDID Copy		x 1	x 1	
	Video OK		x 1	x 1	
	Remote	Video Status	N/A	X 4	X 8
		Audio Status		X 4	X 8
	Local	Video Status		X 1	X 1
		Audio Status		X 1	X 1
Jog Wheel	Video Adjustment	N/A	On/Off	On/Off	
	Audio Adjustment	N/A	8 Levels	8 Levels	
Additional Function	One EDID Copy Button	for Port 1 only	for Local only	for Local only	
Max. Video Resolution		Full HD (1920 x 1080) / WUXGA(1920 x 1200)			
Grounding Tab		Yes			
Power Consumption (Max.)		DC 9-12V, 200mA		DC 9-12V, 600mA	
Dimensions H x W x D (mm)		28 x 140 x 110			

		Repeater		Receiver	
		EXVA-321X		EXVA-220R EXVA-320R	
Extension Distance (Max.)		300m		200m 300m	
Input		Extension		RJ-45 x 1	
Output		Video Connector		HDB15 x 2	
		Audio Connector		3.5mm Ear Jack x 2	
		Extension		RJ-45 x 1	
Front Panel LEDs	Local	Video Status		X 2	
		Audio Status		X 2	
	Remote	Video Status		X 1	
		Audio Status		X 1	
	Video	(R.G.B.) Skew		X 1 (Triple Color LED)	
		Gain		X 1	
		EQ		X 1	
Jog Wheel		Video Adjustment		On / Off + Skew, Gain, EQ	
		Audio Adjustment		8 Levels	
Max. Video Resolution		Full HD (1920 x 1080) / WUXGA(1920 x 1200)			
Grounding Tab		Yes			
Power Consumption (Max.)		DC 9-12V, 600mA		DC 9-12V, 200mA	
Dimensions H x W x D (mm)		28 x 140 x 110		28 x 140 x 110	

Limited Warranty

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