User Manual

HDMI HDBaseT 1x4 1080p

Extender/Splitter - 150m

Preface

Read this user manual carefully before using the product. Pictures are shown in this manual for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated till December, 2017. In the constant effort to improve the product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

FCC Statement

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. It 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 commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.

SAFETY PRECAUTIONS

To ensure the best performance from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical waste.

Table of Content

1. Introduction

Thanks very much for purchasing the HDMI HDBaseT 1x4 1080p Extender/Splitter - 150m. This device accepts a single HDMI input and splits into four HDBaseT outputs and one HDMI output.

It supports video resolutions up to 1080p@60Hz and all HDMI audio formats. It can extend 1080p signals on each HDBaseT output to up to 492 feet (150 meters) over a single CATx Ethernet cable. It also supports the Power over Cable (PoC) feature, which allows the included HDBaseT receivers to be powered from the splitter over Ethernet cables. Moreover, it supports bidirectional IR and RS232 control.

1.1 Features

- Splits a single HDMI input to four HDBaseT outputs.
- Supports video resolutions up to 1080p@60Hz.
- Extends 1080p signals on each output to distances up to 492 feet (150 meters) over a single CATx Ethernet cable.
- Supports the Power over Cable (PoC) feature, allowing the HDBaseT receivers to be powered by the splitter over the Ethernet cables.
- Supports bidirectional IR control for flexibility control.
- Smart EDID management. Selects the output resolution to match the connected displays by 4-pin DIP switch.
- Fully compliant with the HDMI 1.4 and HDCP 2.2 specification.

1.2 Package List

HDBaseT Splitter	● 1 x HDMI HDBaseT 1080p Extender/Splitter
	● 2 x Mounting Ears with 4 Screws
	● 2 x Long Mounting Ears
	● 4 x Plastic Cushions
	● 1 x IR Receiver (5V with carrier wave)
	● 4 x IR Emitters
	● 1 x RS232 Cable (3-pin to DB9)
	● 1 x Power Adaptor (24VDC 2.71A)
HDBaseT Receiver	● 4 x HDBaseT Receivers
	● 8 x Mounting Ears with 8 Screws
	● 16 x Plastic Cushions
	● 4 x 3-pin Phoenix Connectors
	● 1 x User Manual

Note: Please contact your distributor immediately if any damage or defect in the components is found.

2. Specification

2.1 HDBaseT Splitter

Video Input	
Input	(1) HDMI
Input Connector	(1) Female type A HDMI
Input Video Signal	HDMI
HDMI Input Resolution	Up to 4Kx2K@30Hz
Video Output	
Output	(1) HDMI; (4) HDBT
Output Connector	(1) Female type A HDMI; (4) RJ45
Output Video Signal	HDMI, HDBaseT
HDMI Output Resolution	Up to 4Kx2K@30Hz
HDBT Output Resolution	Up to 1080p@60Hz
Control	
Control port	(1) EDID; (1) EDID PRESET; (1) IR ALL IN; (1) IR ALL OUT; (1) REMOTE; (1) MASTER
Control Connector	(1) 3-pin DIP switch; (1) 4-pin DIP switch; (2) 3.5mm mini jacks; (2) 3-pin phoenix connectors
General	
Transmission Mode	HDBaseT
Transmission Distance	1080p ≤492 feet (150 meters)
Operation Temperature	0 ~ +40℃
Storage Temperature	-10 ~ +55℃
Relative Humidity	10% ~ 90%
AC Adapter Input Power	100V~240V AC, 50/60Hz
Input Power	24VDC 2.71A
Power Consumption	35W (Max)
Dimension (W*H*D)	219mm x 44mm x 157.5mm
Net Weight	1.24kg

2.2 HDBaseT Receiver

Input	
Input Signal	(1) HDBT
Input Connector	(1) RJ45
Output	
Output	(1) HDMI
Output Connector	(1) Female type A HDMI
Control	
Control port	(1) IR IN; (1) IR OUT; (1) RS232
Control Connector	(2) 3.5mm mini jacks; (1) 3-pin phoenix connector
General	
Resolution Range	Up to 1080p@60Hz
Transmission Mode	HDBaseT
Transmission Distance	1080p ≤ 492 feet (150 meters)
Bandwidth	10.2Gbps
HDMI Standard	Support HDMI1.4 and HDCP2.2
Impedance	75Ω
Operation Temperature	0 ~ +40℃
Storage Temperature	-10 ~ +55℃
Relative Humidity	10% ~ 90%
AC Adapter Input Power	100V~240V AC, 50/60Hz
Input Power	12VDC 1A
Power Consumption	9.5W (Max)
Dimension (W*H*D)	84mm x 16mm x 104mm
Net Weight	140g

*Note: Please adopt quality CAT Ethernet cable compliant with CAT6e or higher standard for reliable transmission.*

3. Panel Description
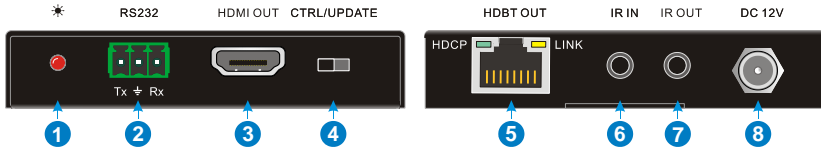
3.1 HDBaseT Splitter Front Panel

No.	Name	Description
①	Power LED	The LED illuminates red when power is applied.
②	Input LED	The LED illuminates green when there is HDMI source input.
③	HDMI output LED	The LED illuminates green when there is HDMI output.
④	HDBT output LEDs	Four LEDs, one of which illuminates green to indicate the display device outputting HDBaseT signal.
⑤	EDID	3-pin DIP switch for setting the Extended Display Identification Data (EDID) value.

3.2 HDBaseT Splitter Rear Panel
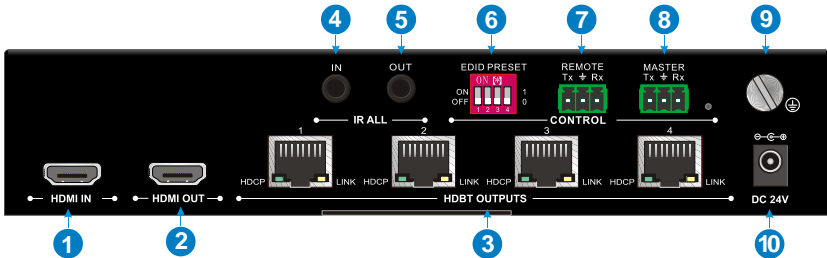
No.	Name	Description
①	HDMI IN	HDMI port for connecting the HDMI source device (Blu-ray Disc™, DVD player, gaming console, etc.).
②	HDMI OUT	Local HDMI port for connecting a local display.
③	HDBT OUTPUTs	Four HDBaseT RJ45 outputs for connecting the four HDBaseT receivers.
④	IR ALL IN	3.5mm jack for connecting the IR receiver.
⑤	IR ALL OUT	3.5mm jack for connecting the IR emitter.
⑥	EDID PRESET	4-pin DIP switch for setting manual EDID management.
⑦	REMOTE	3-pin phoenix connector for connecting to a computer for RS232 pass through control.
⑧	MASTER	3-pin phoenix connector for connecting to a computer for controlling this splitter via RS232 commands.
⑨	GROUND	Ground connection.
⑩	DC 24V	DC barrel connector for the AC power adapter.

3.3 HDBaseT Receiver

| No.	Name	Description
①	Power LED	Illuminates red when power is applied.
②	RS232	Euroblock/Phoenix connector for connecting to a computer for RS232 pass through control.
③	HDMI OUT	HDMI port for connecting the video display.
④	CTRL/UPDATE	Switch to in the **CTRL** position, it serves as an RS232 serial extender. Switch to in the **UPDATE** position, it allows to update the Valens IC program by connecting to a PC and running the batch file.
⑤	HDBT OUT	HDBaseT RJ45 output for connecting the HDBaseT receiver.
⑥	IR IN	3.5mm jack for connecting the IR receiver.
⑦	IR OUT	3.5mm jack for connecting the IR emitter.
⑧	DC12V	When the splitter is powered on, the DC barrel connector doesn't need to connect to the power adapter.

4. System Connection

4.1 Usage Precautions

- Verify all components and accessories included before installation.

- System should be installed in a clean environment with proper temperature and humidity.

- All of the power switches, plugs, sockets, and power cords should be insulated and safe.

- All devices should be connected before power on.

4.2 System Diagram

The following diagram illustrates typical input and output connections that can be utilized with the splitter:
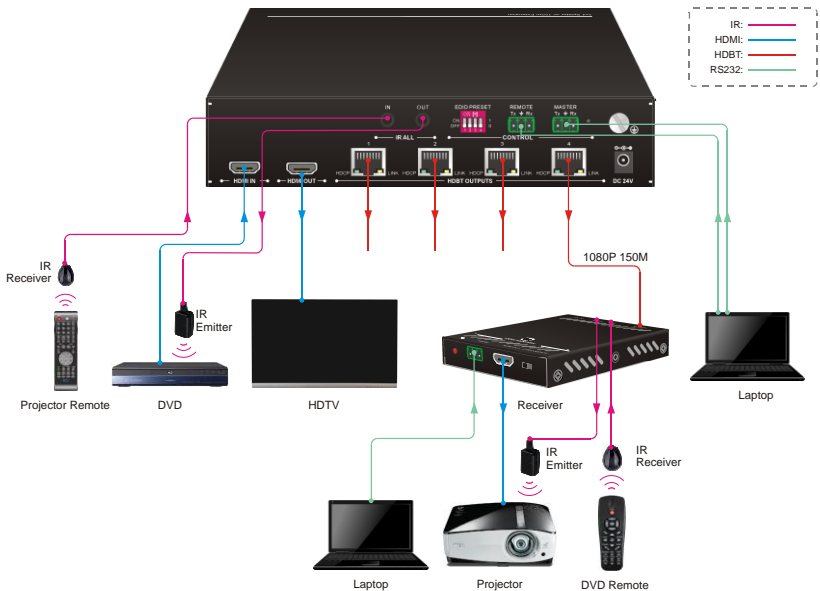
5. RS232 Control

- When the splitter needs to be controlled via RS232, please connect the control PC to the **MASTER** RS232 port, and install control software in PC, and then send RS232 commands of splitter to control.

- When the third-party device needs to be controlled via RS232, please connect PC to the **REMOTE** port, and install control software in PC, then send RS232 commands of third-party device to control.

5.1 RS232 Control Software

- **Installation:** Copy the control software file to the computer which connected with the splitter.
- **Uninstallation:** Delete all the control software files in corresponding file path.
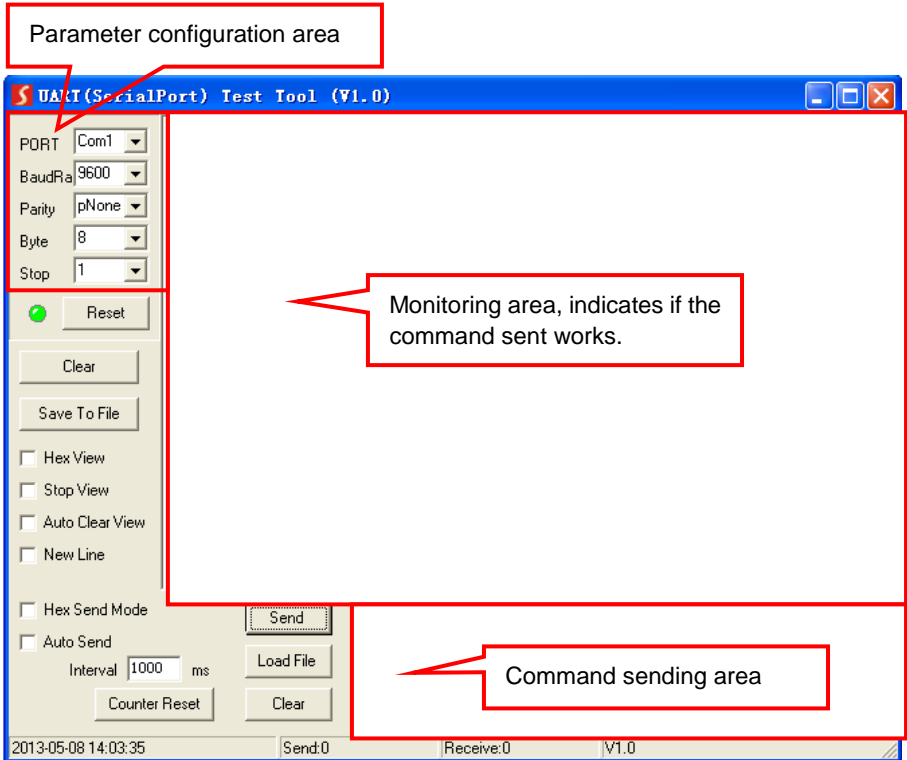
Basic Settings:

First connect all input devices and output devices are needed, then connect it with a computer which is installed with RS232 control software.

Double-click the software icon to run this software. Here we take the software **CommWatch.exe** as example. The icon is shown as below:

CommWatch. exe

The interface of the control software is shown as below:

Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, and then you are able to send command in Command Sending Area.

The baud rate supports 2400, 4800, 9600(default), 19200, 38400, 57600 or 115200.

5.2 RS232 Command

Communication protocol: RS232 Communication Protocol
Baud rate: 9600   Data bit: 8   Stop bit: 1   Parity bit: none

The following RS232 commands are used for controlling splitter.

Command	Description	Command Example and Response
OFF0.	Turn off all outputs.	OFF0. OFF All
OFF1.	Turn off the local HDMI output.	OFF1. OFF 1
OFF2.	Turn off the HDBT output 1.	OFF2. OFF 2
OFF3.	Turn off the HDBT output 2.	OFF3. OFF 3
OFF4.	Turn off the HDBT output 3.	OFF4. OFF 4
OFF5.	Turn off the HDBT output 4.	OFF5. OFF 5
ON0.	Turn on all outputs (default).	ON0. ON All
ON1.	Turn on the local HDMI output.	ON1. ON 1
ON2.	Turn on the HDBT output 1.	ON2. ON 2
ON3.	Turn on the HDBT output 2.	ON3. ON 3
ON4.	Turn on the HDBT output 3.	ON4. ON 4
ON5.	Turn on the HDBT output 4.	ON5. ON 5

6. IR Control

It provides IR control of remote devices by connecting an IR receiver and emitter to the system. The IR feature is bidirectional, so either the source or display device(s) can be controlled.

6.1 Controlling the Display Device

The **IR ALL IN** port of the splitter can receive all IR signals from remotes to send to control displays. Connect an IR receiver to **IR ALL IN** port of the splitter, and then connect four IR emitters to **IR OUT** port on HDBaseT receivers.
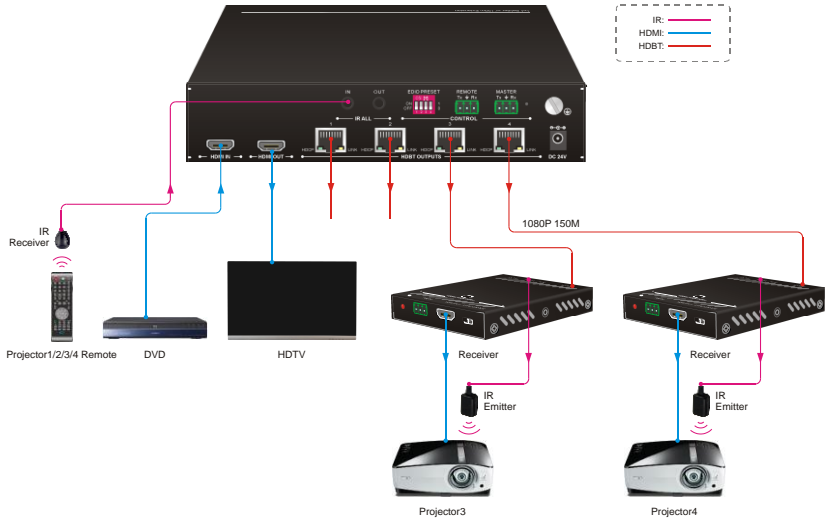
6.2 Controlling the Source Device

The **IR ALL OUT** port of the splitter can send all IR signals to control source device. Connect four IR receivers to **IR IN** ports on HDBaseT receivers, and then connect an IR emitter to **IR ALL OUT** port of the splitter.
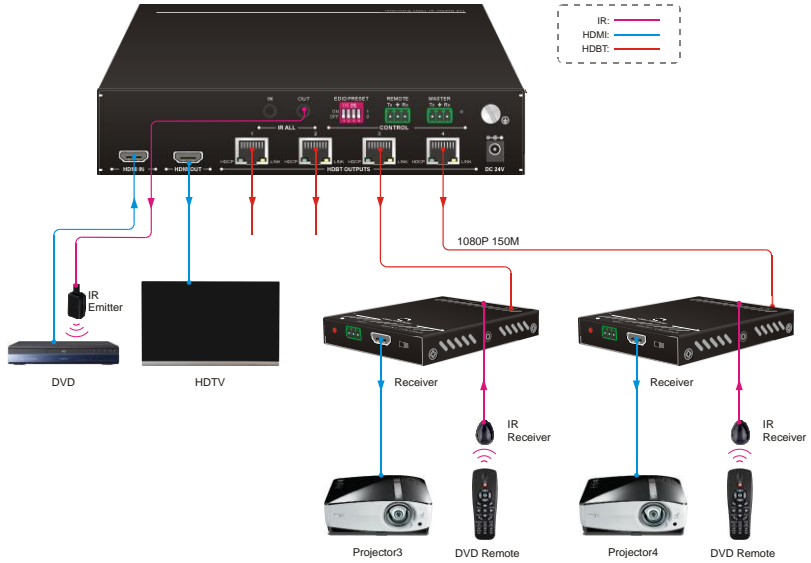
7. EDID Management

The Extended Display Identification Data (EDID) is used by the source device to match its video resolution with that of the connected display. The source device obtains its EDID from the first connected display as default setting. However, since displays with different capabilities can be connected to the splitter, the EDID DIP switch can be used to set the EDID to a fixed value.

● **The EDID switch on front panel:**

Switch Status	Description
L.RES	The splitter reads EDID from all connected displays, and then the source device will automatically obtain the EDID which contain the lowest resolution.
PRESET	Switch to the preset EDID, and the preset EDID can be set via the 4-pin EDID switch on rear panel. The factory default is 720p.
H.RES	The splitter reads EDID from all connected displays, and then the source device will automatically obtain the EDID which contain the highest resolution.

● **The 4-pin EDID preset switch on rear panel:**

The 4-pin DIP switch on the rear panel allows you to set the EDID information that is passed to the source devices. Use the following table to determine the settings for the 4-pin DIP switch for specific video resolution and audio capabilities. When in the down position, each switch represents a 0, while putting the switch in the up position represents a 1. The below switch status is "0000".

ID	Switch	Video	Audio
0	0000	The source device will automatically obtain the EDID of the display that connected the port HDBT OUT 1.	
1	0001	The source device will automatically obtain the EDID of the display that connected the port HDBT OUT 2.	
2	0010	The source device will automatically obtain the EDID of the display that connected the port HDBT OUT 3.	
3	0011	The source device will automatically obtain the EDID of the display that connected the port HDBT OUT 4.	
4	0100	The source device will automatically obtain the EDID of the display that connected the port HDMI OUT.	
5	0101	720p 2D	2-channel
6	0110	720p 3D	2-channel
7	0111	720p 2D	Multichannel
8	1000	720p 3D	Multichannel
9	1001	1080p 2D	2-channel
10	1010	1080p 2D	Multichannel
11	1011	User-define	
12	1100		

Besides the above EDID, there are 2 EDID can be customized by the following updating program.

First, copy the upgrade file (.bin) to the PC which is connected to RS232 port.

Second, copy the following programming tool to the PC.
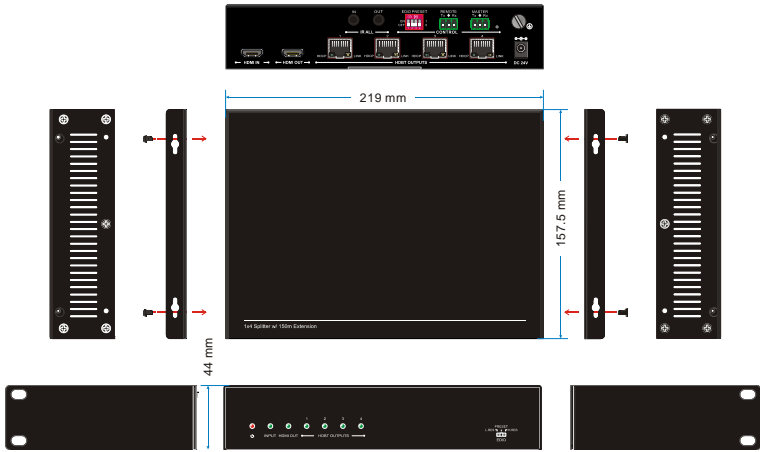

Y_EDIDGra
de&V1.0.0

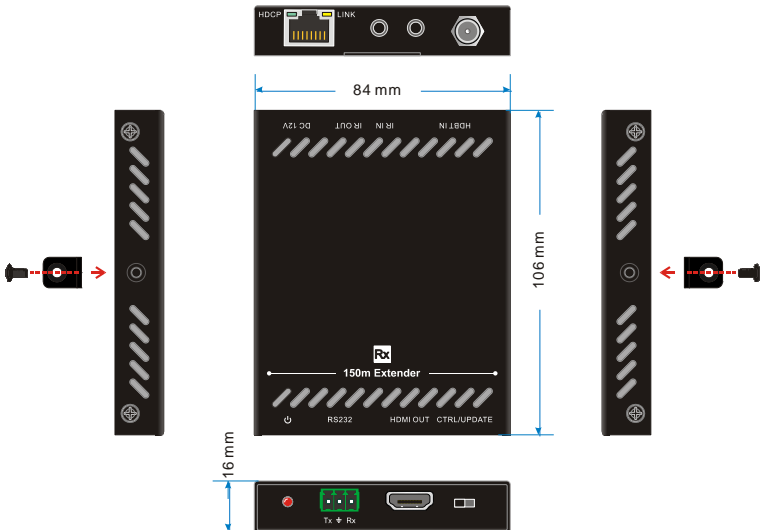Finally, open the programming tool and load the update file to start update EDID.

After customizing EDID data, the new EDID can be invoked via DIP switch.

Note: *Please connect our after-sales department to obtain the upgrade file, the programming tool, and detailed upgrade guidance.*

8. Panel Drawing

HDBaseT Splitter

HDBaseT Receiver

9. Troubleshooting & Maintenance

Problems	Potential Causes	Solutions
Color losing or no video signal output in HDMI display	The connecting cables may not be connected correctly or it may be broken.	Check whether the cables are connected correctly and in working condition.
	The display is not compatible with the present output resolution.	Make sure the resolution of the display(s) is compatible with the present resolution.
No HDMI signal output in splitter while local HDMI input is in normal working state	The connecting cables may not be connected correctly or it may be broken.	Check whether the cables are connected correctly and in working condition.
Splash screen in output devices	Poor quality of the connecting cable	Change for another cable of good quality.
Static becomes stronger when connecting the video connectors	Bad grounding	Check the grounding and make sure it is connected well.

If your problem still remaining after following the above troubleshooting steps, please contact your local dealer or distributor for further assistance.

10. Customer Service

The return of a product to our Customer Service implies the full agreement of the terms and conditions hereinafter. There terms and conditions may be changed without prior notice.

1) Warranty
   The limited warranty period of the product is fixed three years.

2) Scope
   These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

3) Warranty Exclusions
   - Warranty expiration.
   - Factory applied serial number has been altered or removed from the product.
   - Damage, deterioration or malfunction caused by:
     - ✓ Normal wear and tear.
     - ✓ Use of supplies or parts not meeting our specifications.
     - ✓ No certificate or invoice as the proof of warranty.
     - ✓ The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
     - ✓ Damage caused by force.
     - ✓ Servicing not authorized by distributor.
     - ✓ Any other causes which does not relate to a product defect.
   - Shipping fees, installation or labor charges for installation or setup of the product.

4) Documentation
   Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defeat has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

Remarks: For further assistance or solutions, please contact your local distributor.