User Manual

VL120016

HDBaseT Extender

VIVOLINK™
PROFESSIONAL AV SOLUTIONS

Preface

Read this user manual carefully before using this product. Pictures shown in this manual is for reference only, different model and specifications are subject to real product.

This manual is only for operation instruction only, not for any maintenance usage.

Trademarks

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 insure the best 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 wastes.

Table of Contents

1. Introduction

1.1 Introduction to VL120016

VL120016 is a mini-size extender set consists of transmitter (VL120016T) and receiver (VL120016R). HDBaseT technology is used to transmit high-resolution 1080p/ 4k signal from transmitter to the receiver via a CAT5e/CAT6a cable at a distance of up to 70/40m.Moreover, VL120016 support CEC, bi-directional RS232&IR control, and one-directional PoH function (Tx to Rx).

1.2 Features

- Support Full HD: Delivers high resolution image (1080p@60Hz@48 b/pixels/3D/4Kx2K).
- Maximum transmission distance is 70m for 1080p and 40m for 4Kx2K over single CAT5e/CAT6a cable
- High Bandwidth: 10.2Gps.
- HDTV Compatible, use HDMI 1.4 and HDCP2.2 compliant.
- Support CEC/IR/RS232 passthrough.
- Support PoH, the receiver can be powered by transmitter.
- Bi-directional RS232/IR control.
- Use HDBaseT technology.
- LED indicators show work status.

Note: Please use a CAT5e cable with low impedance (Shielded twisted pair will be better and should be well grounded) for good transmission effect.

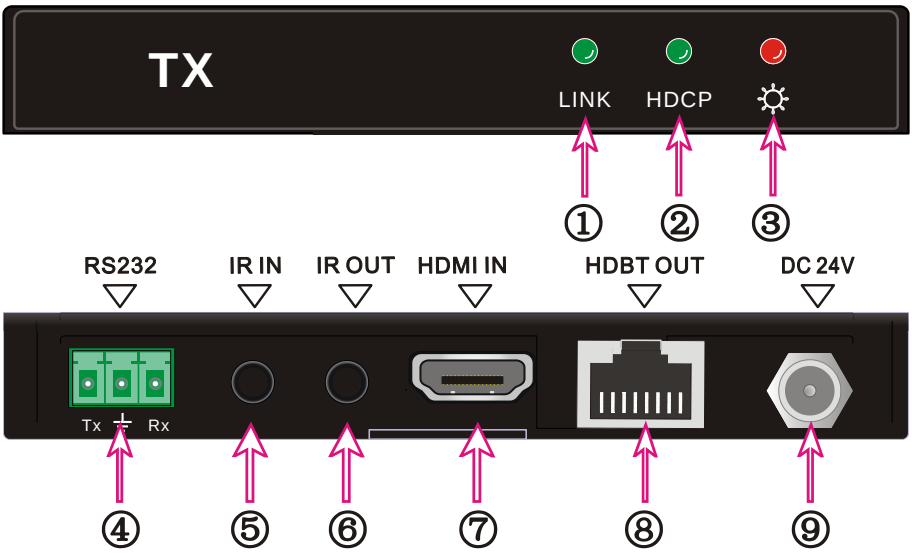
1.3 Package Contents

- 1 x VL120016T
- 1 x VL120016R
- 4 x Mounting ears (Separated from VL120016)
- 8 x Plastic cushions
- 8 x Screws
- 1 x Power adapter (DC 24V 1.25A)
- 2 x RS232 cables
- 1 x User manual

Notes: Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

2. Panel Description

2.1 VL120016T

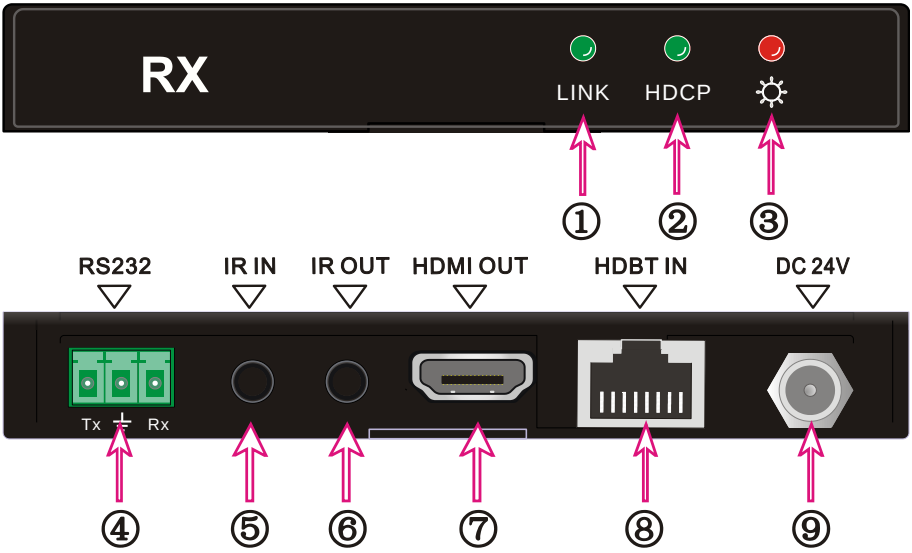


No.	Name	Description
①	LINK	HDBT Link status indicator: ➢ OFF: No Link ➢ GREEN:Link Successful ➢ Blinking GREEN: Link abnormal
②	HDCP	HDCP compliant indicator ➢ OFF: No HDMI traffic (no picture) ➢ GREEN: Traffic with HDCP. ➢ Blinking GREEN: Traffic without HDCP
③	Power	OFF: No power; RED: DC power present.
④	RS232	RS232 connector.
⑤	IR IN	Connect with 5V IR receiver (with carrier) to collect infrared signal, work with far-end IR OUT port
⑥	IR OUT	Connect with 5V IR Emitter to send infrared signal, work with far-end IR IN port
⑦	HDMI IN	Connect with HDMI source
⑧	HDBT OUT	Connect to the HDBT IN socket on VL120016R via CAT5e/ CAT6a cable, support unidirectional PoH.

⑨	DC 24V	Connect with power supply

🕮 Pictures shown in this manual are only for reference.

2.2 VL120016R



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③	Power	OFF: No power; RED: DC power present.
④	RS232	RS232 connector.
⑤	IR IN	Connect with 5V IR receiver (with carrier) to collect infrared signal, work with far-end IR OUT port
⑥	IR OUT	Connect with 5V IR Emitter to send infrared signal, work with far-end IR IN port
⑦	HDMI OUT	Connect with HDMI display

⑧	HDBT IN	Connect to the HDBT OUT socket on the VL120016T via CAT5e/ CAT6a cable.
⑨	DC 24V	Connect with power supply (Not necessary if VL120016T connects with power).

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3. System Connection

3.1 Usage Precautions

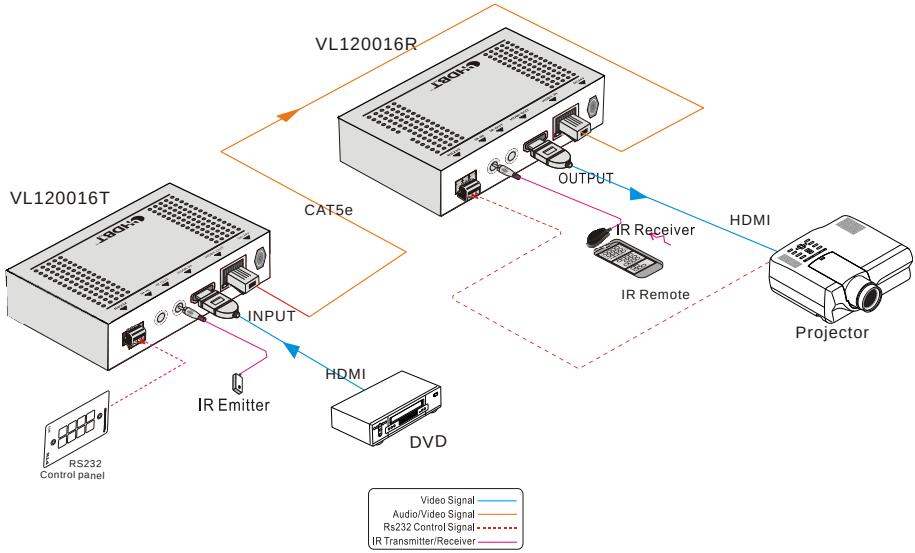
1) System should be installed in a clean environment and has a prop temperature and humidity.

2) All of the power switches, plugs, sockets and power cords should be insulated and safety.

3) All devices should be connected before power on.

4) Use shielded straight-thru CAT5e/CAT6a cable with TIA/EIA T568B terminations for good transmission effect.

3.2 System Diagram



3.3 Connection Procedure

Step1. Connect HDMI source (such as Blue-ray DVD) to HDMI IN port of VL120016T with HDMI cable.

Step2. Connect HDBT OUT port of VL120016T and HDBT IN port of VL120016R, with single CAT5e/CAT6a cable.

Step3. Connect HDMI displayer (such as HDTV) to HDMI OUT port of VL120016R with HDMI cable.

Step4. Both VL120016T and VL120016R have IR IN and OUT. When one end is used as an IR receiver, the signal sent from the end can only be transmitted via the other end.

For example: When “IR IN” of VL120016T connects with an IR receiver, the IR Emitter must connect to IR OUT of VL120016R.

Step5. Connect the RS232 port of the devices to be controlled and VL120016R or VL120016T.

Step6. Connect with DC24V power adaptor(s) (One is enough if VL120016T is connected with adapter as its PoH function).

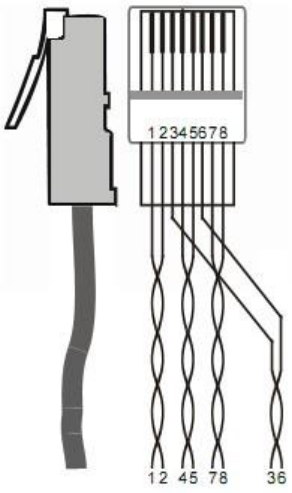
3.4 Application

VL120016 has a good application in various occasions, such as computer realm, monitoring, big screen displaying, meeting room, education and bank & securities institution etc.

3.5 Twisted Pair Cable Connection

The twisted pair used in this extender MUST be a straight-through cable.

TIA/EIA T568A			TIA/EIA T568B	
Pin	Cable color		Pin	Cable color
1	green white		1	orange white
2	green		2	orange
3	orange white		3	green white
4	blue		4	blue
5	blue white		5	blue white
6	orange		6	green
7	brown white		7	brown white
8	brown		8	brown
1st Ground	4--5		1st Ground	4--5
2nd Ground	3--6		2nd Ground	1--2
3rd Group	1--2		3rd Group	3--6
4th Group	7--8		4th Group	7--8



Notice: Cable connectors MUST be metal one, the shielded layer of cable MUST be connected to the connector's metal shell, to make a better transmission.

4. Specification

Model / Spec	VL120016T	VL120016R
Input		
Input Signal	1 HDMI,1 IR & 1 RS232	1 IR, 1 RJ-45 & 1 RS232
Input Connector	HDMI female, 3.5mm mini jack, 3p captive screw connector	3.5mm mini jack, RJ-45, 3p captive screw connector
Audio	Digital audio, transmit through HDMI audio	Digital audio, transmit through HDMI audio
Output		
Output	1 RJ-45, 1 IR, 1 RS232	1 HDMI, 1 IR, 1RS232
Output Connector	RJ-45, 3.5mm mini jack, 3p captive screw connector	HDMI female, 3.5mm mini jack, 3p captive screw connector
General		
Resolution Range	640x480@60Hz~4K×2K@30Hz	
Transmission Mode	HD Base T	
Transmission Distance	1080p 70m 4k 40m	
Bandwidth	10.2Gbps	
HDMI Standard	Support HDMI1.4 and HDCP2.2	
Impedance	75Ω	
Temperature	-20 ~ +70℃	
Humidity	10% ~ 90%	
Power Supply	Input: 100VAC~240VAC, 50/60Hz Output: DC 24V, 1.25A	
Power Consumption	11W	
Case Dimension	W115xH16x D84mm	W115xH16x D84mm
Net Weight	150g	150g

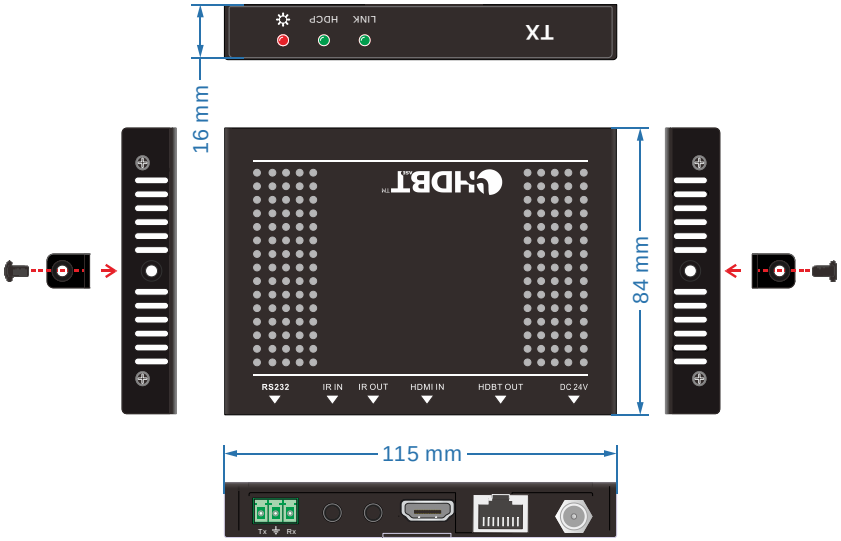
NOTE: All nominal levels are at ±10%.

4.1 Supported Resolution

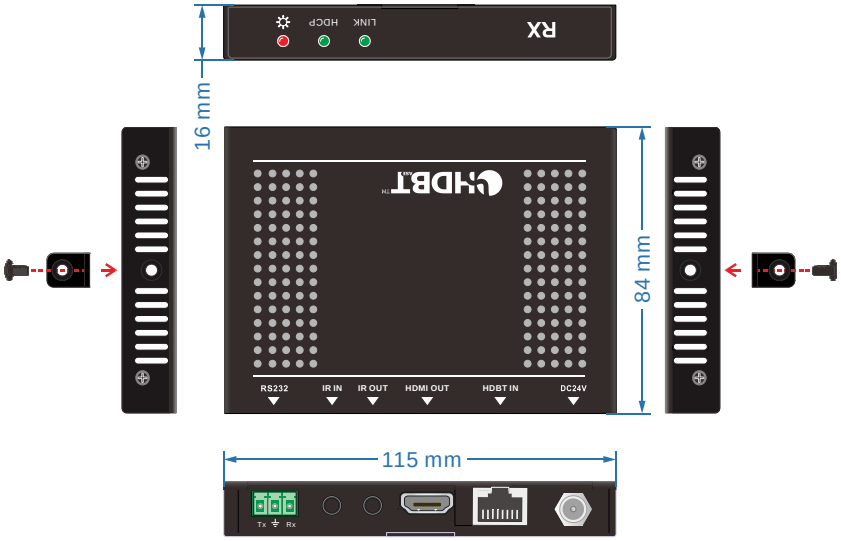
Aspect Ratio	Resolution	Refresh Rate
4Kx 2K	4096x2160	30Hz
	3840x2160	24/25/30Hz
16:9	1920x1080	60Hz
	1600x900	60Hz
	1366x768	60Hz
	1280x720	60Hz
	1024x576	60Hz
16:10	1920x1200	60Hz
	1680x1050	60Hz
	1360x768	60Hz
	1280x800	60Hz
4:3	1600x1200	60/65/70/75/85Hz
	1280x1024	60/75/85/96Hz
	1024x768	60/70/75/85Hz
	800x600	56/60/72/75/85Hz
	640x480	60/72/75Hz

Note: VL120016 supports 4k HDMI signal, please adopt quality HDMI cables compliant with HDMI1.4 for reliable transmission.

5. Panel Drawing



5-1 VL120016T



5-2 VL120016R

6. Troubleshooting & Maintenance

- **No image on display:**
  - Ensure that the display device has been set to the correct input.
  - Ensure that the HDMI cables used for both the source/transmitter and the receiver/display are properly connected and are working. Test the HDMI cables directly from a source to display and ensure their operation.
  - Ensure that the CAT5e/CAT6a cable has not been damaged and that it has been terminated correctly with T568B on both ends. A temporary length of CAT5e/Cat6 can be used for testing to ensure that the devices are all compatible and working properly.
  - Ensure proper grounding of the power supply.
  - Known issues with HDMI 1.2 source devices:

    Older compatibility (HDMI 1.2) may result in HDBaseT transmission issues. Please contact Technical Support of your director for a solution to these issues.
- **Color lose or poor picture quality:**
  - Ensure that the HDMI cables used for both the source and transmitter and the receiver and display are properly connected and are of good quality. Test the HDMI cables directly from a source to display and ensure their picture quality.
  - Ensure proper grounding of the power supply.
  - If the static becomes stronger or picture quality becomes worse when connecting the video connectors, this may be due to improper grounding.
  - Check the grounding and make sure all the components are properly grounded to a common ground. Improper grounding may cause damage to the receiver.

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.

7. After-sales Service

If there appear some problems when running the device, please check and deal with the problems reference to this user manual. Any transport costs are borne by the users during the warranty.

1) **Product Limited Warranty:** We warrants that its products will be free from defects in materials and workmanship for **three years,** which starts from the first day the product leaves warehouse (check the SN mark on the product).
   Proof of purchase in the form of a bill of sale or receipted invoice must be presented to obtain warranty service.

2) **What the warranty does not cover:**
   - 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 majeure.
     - Servicing not authorized
     - Any other causes which does not relate to a product defect
   - Delivery, installation or labor charges for installation or setup of the product

3) **Technical Support:** Email to our after-sales department or make a call, please inform us the following information about your cases.
   - Product version and name.
   - Detailed failure situations.
   - The formation of the cases.

Remarks: For any questions or problems, please try to get help from your local distributor or email EET at: *obsupport@eet.dk*

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