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PRO-HDBaseT-U

4K HDR Extender over Single Cat.X with HDBaseT, RS-232, Bi-directional IR, PoC, USB & ARC

User's Guide

Transmitter

Receiver

1 YEAR WARRANTY

RoHS

FC C€

gofanco®

Congratulations for owning a gofanco product. Our products aim to meet all your connectivity needs wherever you go.

Have fun with our products!

Please read this manual carefully before first use.

If you need more information about our products, please visit www.gofanco.com.

For technical support, please email us at support@gofanco.com.

For drivers/manuals download, please go to http://www.gofanco.com/download.

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1. Safety and Notice

Please read all of these instructions carefully before you use the device. Save this manual for future reference.

The **PRO-HDBaseT-U** **4K HDR Extender over Single Cat.X with HDBaseT, RS-232, Bi-directional IR, PoC, USB & ARC** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the PRO-HDBaseT-U should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

• Follow all instructions and warnings marked on this unit.

• Do not attempt to service this unit yourself, except where explained in this manual.

• Provide proper ventilation and air circulation and do not use near water.

• Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.

• Use only the power adapter and power cords and connection cables designed for this unit.

• Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

2. Introduction

The **PRO-HDBaseT-U** **4K HDR Extender over Single Cat.X with HDBaseT, RS-232, Bi-directional IR, PoC, USB & ARC** boosts up your video/audio transmission distance up to 100m (330ft) in HDTV 1080p with 48-bit color depth and 70m (230ft) at 4K-HDR. PRO-HDBaseT-U has new generation technology which makes sure the HDBaseT extender can support HDMI2.0a and HDCP 2.2. PRO-HDBaseT-U also supports the most advanced 3D video format complaint with HDMI specification and therefore guarantees the highest 3D video compatibility on the market. With only one cost-effective Cat.5/5e/6 cable, users can readily extend UHDTV sources from DVD players, Blu-ray Disc player, PS4, PC, and any other kinds of sources compliant with TMDS to distant display monitors including HDMI or DVI enabled TV sets or LCD PC monitors. With the advanced design for the latest HDMI technology, deep color video, DTS-HD or Dolby TrueHD audio, and HDCP support and compatibility are all further insured. This flexibility makes HDCP compliant DVD players or PS4 transmit utmost high quality video and audio with a greater distance at the minimal cost, when integrating several components apart. In addition, PRO-HDBaseT-U is also equipped with bi-directional IR pass-through path and RS-232 serial port control. These bonus features allow users to boost IR control distance up to 100m (330ft) through only single Cat.5/5e/6 cable including HDMI signals. In addition, serial port and USB2.0 offer the convenient path for interactive application, such as touch panels. In addition, PRO-HDBaseT-U also supports PoC (Power over Cable) which can power both units from TX or RX with power supply.

The PRO-HDBaseT-U includes two units: transmitting unit PRO-HDBaseT-U-TX and receiving unit PRO-HDBaseT-U-RX. The transmitting unit is used to capture the input HDMI / DVI signals with control packets. The receiving unit is responsible for equalizing the transmitted HDMI signal and reconstructing IR and serial control signals. PRO-HDBaseT-U offers the most convenient solution for digital signage with long distance A/V transmission path.

3. Features

- HDMI 2.0a compliant
- Supports 4K2K@60 4:4:4 8bits
- Supports High Dynamic Range (HDR)
- Extends the HDMI Signal up to 100m (330ft) from the HDMI source at Full HD 1080p 48-bit and 70m (230ft) at 4K2K@60 4:4:4 (4K-HDR Technology)
- USB 2.0 over Cat.5/5e/6 cable transmission
- Bi-directional PoC (Power over Cable) support. Only 1 power adapter required to power both the TX and RX
- Supports ARC on receiver unit
- HDCP & EDID Bypass
- CEC support
- Auto equalization
- Analog audio over Cat.5/5e/6 cable transmission from transmitter to receiver
- Pure unaltered uncompressed 7.1ch digital HDMI over Cat.5/5e/6 cable transmission
- DTS-HD Master Audio and Dolby TrueHD high bit rate audio support
- Supports full frequency IR signal from 20KHz to 60KHz
- Bi-directional IR pass-through
- Full Duplex RS-232 control up to 115,200 bps through connector
- Wall mounting housing design for easy and robust installation

> The length depends on the characteristics and quality of the cables. Higher resolutions and longer transmission distances require low skew cables (<25ns/100m) for best performance. Unshielded CAT6 with metal RJ45 connectors is recommanded.
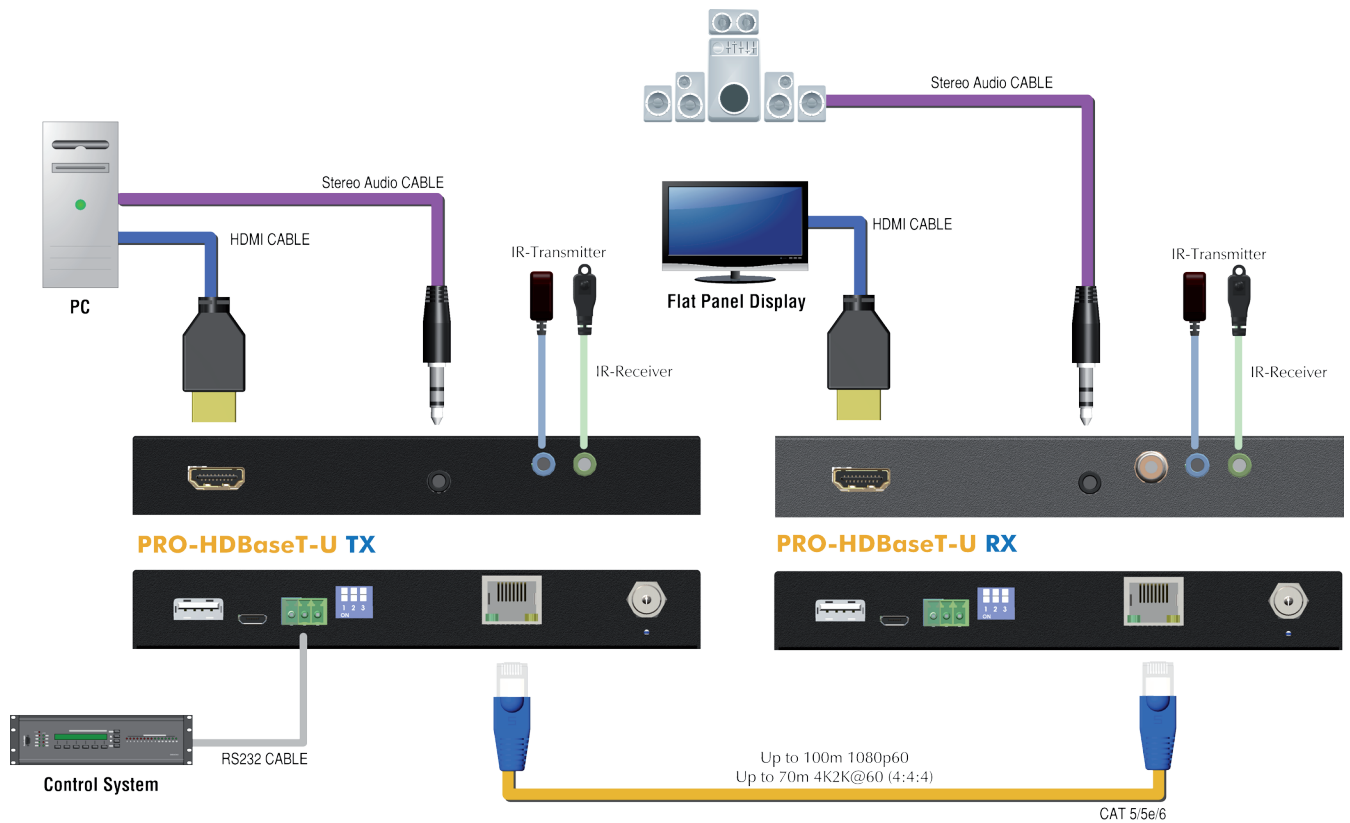
4. Package Contents

- 1x PRO-HDBaseT-U [TX & RX]
- 1x IR blaster
- 1x IR receiver
- 1x 12V 2A
- 4x Ear mount
- 1x User Manual

5. Specifications

Item	Description	
Technical	PRO-HDBaseT-U[Tx]	PRO-HDBaseT-U[Rx]
Role of usage	Transmitter [TX]	Receiver [RX]
HDMI compliance	HDMI 2.0a	
HDCP compliance	Yes (HDCP 2.2)	
Video bandwidth	Single-link 600MHz [18Gbps]	
Video support	HDR 4K2K@60 (4:2:0 10bits) / 4K2K@60 (4:4:4 8bits)	
HDMI over UTP	1080p@60 100m (330ft) [CAT5e] 4K2K@60 (4:4:4 8bit) 70m (230ft) [CAT 5e]	
Audio support	Surround sound [up to 7.1ch] or stereo audio	
Equalization	Auto	
Input TMDS signal	1.2 Volts [peak-to-peak]	
Input DDC signal	5 Volts [peak-to-peak, TTL]	
ESD protection	Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]	
IR pass-thru	Bi-directional	
RS-232 support	Yes	
USB support	USB2.0	
PoC support	Yes	
Input	1x HDMI, 2x 3.5mm	1x RJ-45, 1x 3.5mm
Output	1x RJ-45, 1x 3.5mm	1x HDMI, 2x 3.5mm, 1x SPDIF
In / Out	1x RS-232, 2x USB	1x RS-232, 2x USB
HDMI source control	Controllable via IR pass-through from RX to TX or TX to RX with IR extenders	
HDMI connector	Type A [19-pin female]	
RJ-45 connector	WE/SS 8P8C(Reverse Mode)	
USB connector	Type A & Type micro-USB	
3.5mm connector	IR receiver / IR blaster	IR receiver / IR blaster
Mechanical		
Housing		Metal enclosure	
Dimensions [L x D x H]	Model	150x95x20mm[5.9" x3.7" x0.8"]	150x95x20mm[5.9" x3.7" x0.8"]
	Package	264 x 170 x 77mm[10.3" x 6.7" x 3"]	
	Carton	430 x 358 x 291mm[1'4" x 1'2" x 11.5"]	
Weight	Model	387g [13.6 oz]	406g [14.3 oz]
	Package	1325g [2.9 lbs]	
Fixedness	Wall-mounting case with screws	
Power supply	12V 2A DC	
Power consumption	18 Watt [max]	
Operation temperature	50°C [122°F]	
Storage temperature	-20~60°C [-4~140°F]	
Relative humidity	20~90% RH [no condensation]	

6. Connection Diagram

Stereo Audio CABLE

Stereo Audio CABLE

HDMI CABLE

HDMI CABLE

IR-Transmitter

IR-Transmitter

PC

Flat Panel Display

IR-Receiver

IR-Receiver

PRO-HDBaseT-U TX

PRO-HDBaseT-U RX

RS232 CABLE

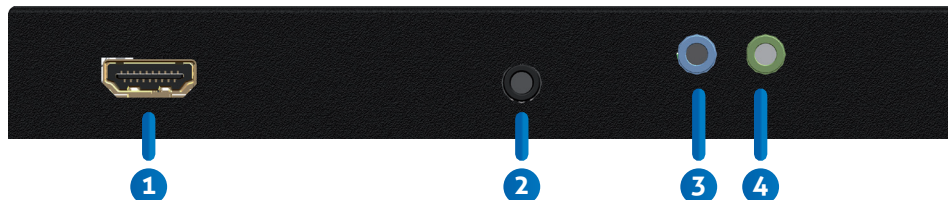Up to 100m 1080p60
Up to 70m 4K2K@60 (4:4:4)

Control System

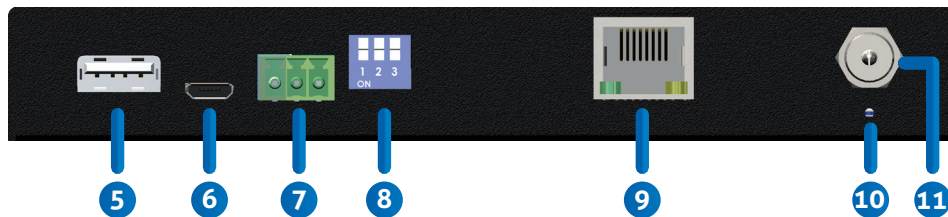CAT 5/5e/6

7. Panel Description

Transmitting unit ► PRO-HDBaseT-U-TX

Front Panel

1. **HDMI IN:** Connect to a HDMI source with a HDMI male-male cable
2. **Stereo Input:** Provide a channel to extend an external analog audio to receiver over HD-BaseT
3. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
4. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
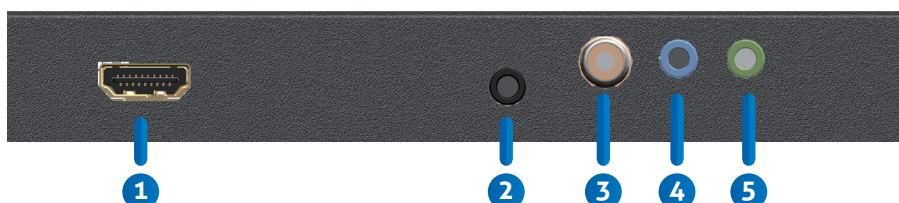
Rear Panel

5. **USB:** Connect to USB Device
6. **Micro-USB:** Connect to USB Host
7. **RS-232:**Connect to serial port device with a DSUB-9 male-male or male-female cable here F/W update for Valens chipset
8. **DIP Switch**   ON[⬇] OFF[⬆]

DIP Switch Position			Description
PIN#1	ON[⬇]		Link to USB Host (USB-micro port)
	OFF[⬆]		Link to USB Device (USB Type A port)
PIN#2	PIN#3	ON[⬇]	ON[⬇]	For HDBaseT Firmware Update
		ON[⬇]	OFF[⬆]	HDBaseT Monitor Mode
		OFF[⬆]	ON[⬇]	For System Firmware Update
		OFF[⬆]	OFF[⬆]	RS-232 Normal Use

9. **RJ45:** Plug in a Cat-5/5e/6 cable that needs to be linked to the transmitting unit RX
   [Green LED] Link indicator LED
   [Yellow LED] When transmitting unit receive the HDMI signal, the LED light will shine
10. **LED:** Power indicator
11. **+12V DC:** Connect to a 12V DC power supply.

Receiving unit ► PRO-HDBaseT-U-RX

Front Panel

1. **HDMI OUT:** Connect to a HDMI display with a HDMI male-male cable
2. **Stereo Output:** External analog audio output from transmitter over HDBaseT
3. **S/PDIF Output:** local ARC output
4. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
5. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver

Rear Panel

6. **USB:** Connect to USB Device
7. **Micro-USB:** Connect to USB Host
8. **RS-232:** Connect to serial port device with a DSUB-9 male-male or male-female cable here F/W update for Valens chipset
9. **DIP Switch**   ON[⬇] OFF[⬆]

DIP Switch Position				Description
PIN#1		ON[⬇]		Link to USB Host (USB-micro port)
		OFF[⬆]		Link to USB Device (USB Type A port)
PIN#2	PIN#3	ON[⬇]	ON[⬇]	For HDBaseT Firmware Update
		ON[⬇]	OFF[⬆]	HDBaseT Monitor Mode
		OFF[⬆]	ON[⬇]	For System Firmware Update
		OFF[⬆]	OFF[⬆]	RS-232 Normal Use

10. **RJ45:** Plug in a Cat-5/5e/6 cable that needs to be linked to the transmitting unit TX
    [Green LED] Link indicator LED
    [Yellow LED] When receiving unit receive the HDMI signal, the LED light will shine
11. **LED:** Power indicator
12. **+12V DC:** Connect to a 12V DC power supply.

8. IR Pass-Through

IR Extenders

IR Blaster   IR Receiver

IR Sockets

IR BLASTER:
plug in the IR blaster to emit all IR command signals received from the IR receiver from the other end to control the devices corresponding to the IR signals.

IR RECEIVER:
plug in the IR receiver to receive all IR command signals from the IR remote controls of the corresponding devices.

⚠ CAUTION
Incorrect placement of IR Blaster and Receiver may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets. Warranty will not cover the damage.

Definition of IR Earphone Jack

1. IR Signal
2. Grounding

1 2

IR Blaster

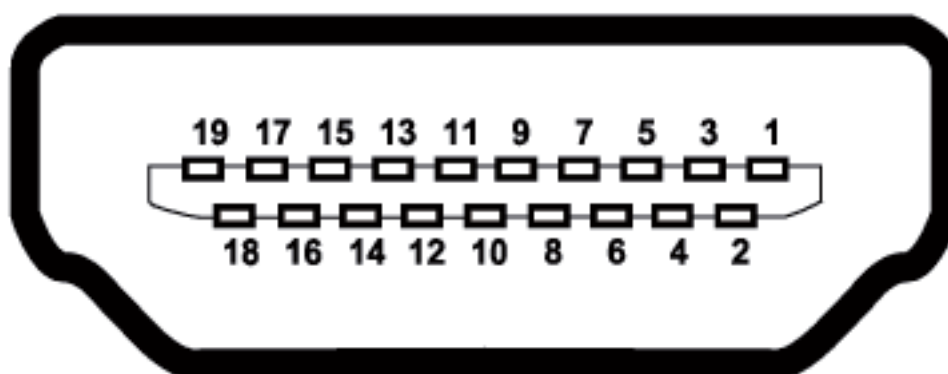1. IR Signal [20-60 kHz]
2. Grounding
3. Power

1 2 3

IR Receiver

ℹ You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the matrix if necessary for replacement use. However, IR cables longer than 2m (6-ft) may not work.

9. HDMI PIN Definition

Type A (Receptacle) HDMI

Pin		Pin	
Pin 1	TMDS Data2+	Pin 11	TMDS Clock Shield
Pin 2	TMDS Data2 Shield	Pin 12	TMDS Clock–
Pin 3	TMDS Data2–	Pin 13	NC
Pin 4	TMDS Data1+	Pin 14	Reserved (N.C. on device)
Pin 5	TMDS Data1 Shield	Pin 15	SCL
Pin 6	TMDS Data1–	Pin 16	SDA
Pin 7	TMDS Data0+	Pin 17	DDC/CEC Ground
Pin 8	TMDS Data0 Shield	Pin 18	+5V Power
Pin 9	TMDS Data0–	Pin 19	Hot Plug Detect
Pin 10	TMDS Clock+		

10. Hardware Installation

1. onnect a HDMI or DVI source (such as a Blu-ray Disc player) to the transmitting unit PRO-HDBaseT-U-TX.

2. Connect a HDMI or DVI display (such as a LCD TV) to the receiving unit PRO-HDBaseT-U-RX.

3. Connect IR Blaster/Receiver to both TX and RX units.

4. Connect USB Host/Device to both TX and RX units

5. Connect audio source to TX and audio receiver/speaker to RX unit.

6. Connect a Cat-5/5e/6 cable between the transmitting and receiving units.

7. Make sure this Cat-5/5e/6 cable is tightly connected and not loose.

8. Plug in 12V DC power supply unit to the power jack of the transmitting unit PRO-HDBaseT-U-TX.

11. Notice

1. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT-5e 125MHz UTP cable and ASTRODESIGN Video Signal Generator VG-859C & VG-870B.

2. Incorrect placement of IR Blaster and Receiver may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets. Warranty will not cover the damage.

3. The transmission length is largely affected by the type of Cat-5/5e/6 cables, the type of HDMI sources, and the type of HDMI display. The testing result shows solid UTP cables (usually in the form of 300m [1,000ft] bulk cables) can transmit a lot longer signals than stranded UTP cables (usually in the form of fixed length patch cords). Shielded STP cables are better suited than unshielded UTP cables. A solid UTP Cat-5e cable shows longer transmission range than stranded STP Cat-6 cable. For long extension applications, solid UTP/STP cables are the only viable choice.

4. EIA/TIA-568-B termination (T568B) for Cat-5/5e/6 cables is recommended for better performance.

5. To reduce the interference among the unshielded twisted pairs of wires in Cat-5/5e/6 cable, one can use shielded STP cables to improve EMI problems, which is worsen in long transmission.

6. Because the quality of the CAT5/6 cables has the major effect on how long the transmission limit can achieve and how good is the received picture quality, the actual transmission range is subject to one's choice of Cat-5/5e/6 cables. For desired resolutions greater than 1080i or 1280x1024, a Cat-6 cable is recommended.

7. If your HDMI display has multiple HDMI inputs, it is found that the first HDMI input [HDMI input #1] generally can produce better transmission performance among all HDMI inputs.

12. Limited Warranty

The SELLER warrants the **PRO-HDBaseT-U** **4K HDR Extender over Single Cat.X with HD-BaseT, RS-232, Bi-directional IR, PoC, USB & ARC** free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surge. This warranty is offered by the SELLER for its BUYER with direct transaction only. This warranty is void if the warranty seal on the metal housing is broken.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables and power adapters are limited to a 30 day warranty and must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. Also, the technical information contained herein regarding the PRO-HDBaseT-U features and specifications is subject to change without further notice**.**

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