gofanco®

HDMI Over IP Extender
4K60 - 100m
User's Guide



P/N:
HD20Ext1xN (Kit)
HD20Ext1xN-RX (Receiver)

G4-0155A

Thank you for purchasing from gofanco. Our products aim to meet all your connectivity needs wherever you go. For optimum performance and safety, please read the instructions carefully and keep this User's Guide for future reference. If you need more information about our products, please visit www.gofanco.com. For technical support, email us at support@gofanco.com. For drivers/manuals download, please go to http://www.gofanco.com/downloads.

Important Safety Notices

Please read safety instructions carefully before installation and operation.

- Please pay close attention to all warnings and hints for this device
- Do not expose this unit to rain, heavy moisture, or liquid
- Do not put any items into the device or attempt to modify its operation
- Do not repair the device or open the enclosure without professional guidance to avoid electric shocks. Doing so may void your warranty
- Keep the product in a well-ventilated location to avoid damage from overheating
- Shut off power and make sure environment is safe before installation
- Do not plug the HDMI cables and IR cables in/out when the device is in use to avoid cable damage. Make sure they are plugged into the correct ports
- Use the included power adapters only. Make sure the specification matches if using 3rd-party DC power adapters

Introduction

The HDMI Over IP Extender 4K60 - 100m extends 4K HDMI signals over CAT6/7 cable up to 100m (328ft) with IR support. It supports a direct 1-to1 connection or 1-to-many over IP networks.

Features

- Supports UHD 4K @60Hz YUV 4:4:4, 18Gbps bandwidth. **Note**: HDR is not supported
- HDCP 2.2/1.4 compliant
- Supports 2-channel Stereo audio
- HDMI loopout, IR extension, RS232 passthrough, and firmware upgradable
- 4K to 1080p auto downscaling is supported on the Receiver (RX). See EDID Management on page 11 for more information
- Direct 1-to-1 connection or 1-to-many over a dedicated Gigabit Ethernet switch or cascading switches. Additional Receivers (part# HD20Ext1xN-RX) sold separately
- Low latency
- Lightning/Surge/ESD protection

Package Contents

- HDMI Over IP Extender 4K60- 100m Kit (1 Transmitter & 1 Receiver)
- 1 IR Blaster cable and 1 IR Receiver cable
- 2 Power adapters (5VDC/1A)
- 2 Terminal blocks (RS232)
- Surface mount accessories
- User's guide

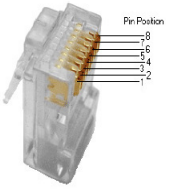
Installation Requirements

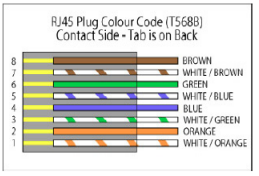
1. HDMI source device (DVD player, set top box, PC, etc.)
2. HDMI display
3. HDMI cables (not included)
4. UTP CAT6/6A/7 cable, following IEEE-T568B wiring standard

CAT Cable Wiring

We suggest both RJ45 connectors be wired identically using T568B wiring standard for the best performance and compatibility.

Both connectors must be wired identically, to T568B standard.





Note: You may use CAT5e, CAT6 wiring, however, for best performance CAT6a or CAT7 (particularly in electrically noisy environments) is recommended. The maximum transmission distance and video quality may be compromised by cable quality, patch cables, poor termination, wall plates, cable kinks, and electrical interference. We recommend using 100% copper 23AWG (avoid CCA type) CAT cable, in one straight run (avoid/minimize patches) and avoid close proximity to electrical sources.

Product Layout

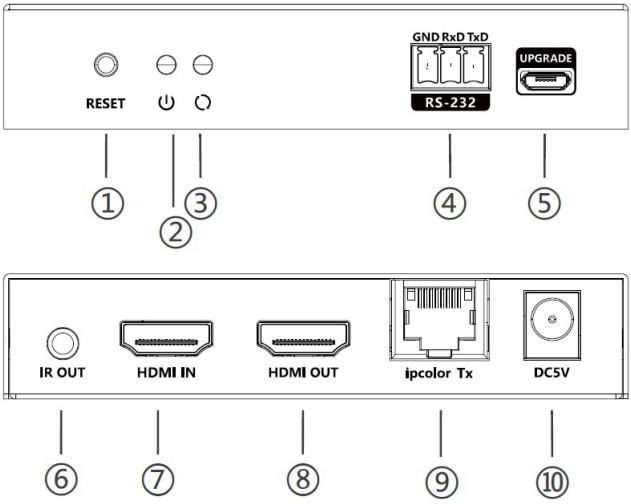


Figure 1: Transmitter (TX) Front and Rear Panel Layout

1. **Reset**: Press to reset if the extender doesn't work properly
2. **Power LED**: On when the Transmitter is powered
3. **Status LED**:

   • **Off**: Connection NOT established between the TX and RX

   • **Flashing Slowly**: Connection established between the TX and RX but there is NO signal transmission (Gigabit Ethernet connection)

   • **Quick Flash**: Connection established between the TX and RX but there is NO signal transmission (1 to 1 connection)

   • **Solid On**: Signal is transmitting
4. **RS232**: Connects to system for RS232 passthrough
5. **Micro USB**: Firmware update port

6. **IR Out**: Connect to the included IR Blaster cable to control the HDMI source device from the remote display location - See IR Application on page 10
7. **HDMI In**: Connect to your HDMI source with an HDMI cable (cable not included)
8. **HDMI Out**: Connect to an HDMI display, with an HDMI cable, for local monitoring of the remote display (cable not included)
9. **RJ45 Out:** Link to the Receiver's RJ45 In using a CAT6/7 cable
10. **Power Jack**: Connect the included power adapter

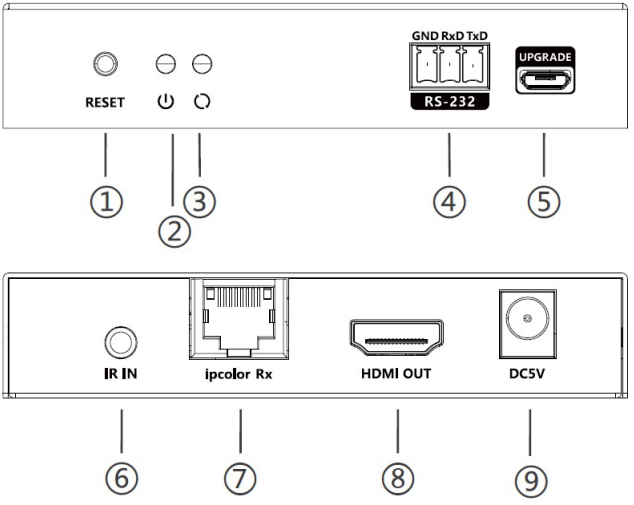


Figure 2: Receiver (RX) Front and Rear Panel Layout

1. **Reset**: Press to reset if extender doesn't work properly
2. **Power LED**: On when the Receiver is powered

3. **Status LED**:

   • **Off**: Connection NOT established between the TX and RX

   • **Flashing Slowly**: Connection established between the TX and RX but there is NO signal transmission (Gigabit Ethernet connection)

   • **Quick Flash**: Connection established between the TX and RX but there is NO signal transmission (1 to 1 connection)

   • **Solid On**: Signal is transmitting

4. **RS232**: Connects to system for RS232 passthrough
5. **Micro USB**: Firmware update port
6. **IR In**: Connect to the included IR Receiver cable to control the HDMI source device from the remote display location - See IR Application on page 10
7. **RJ45 In:** Link to the Transmitter's RJ45 Out using a CAT6/7 cable
8. **HDMI Out**: Connect to an HDMI display
9. **Power Jack**: Connect the included power adapter

Surface Mount

Install the surface mount ears onto the unit and secure it in position. This step is optional and only needed for setups requiring surface mounting.

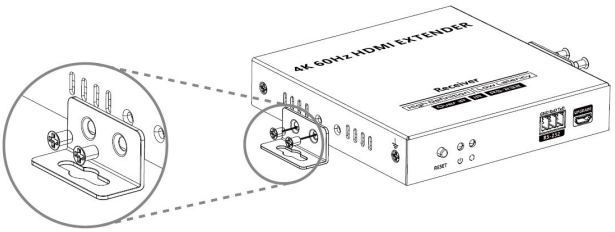


Figure 3: Surface Mount

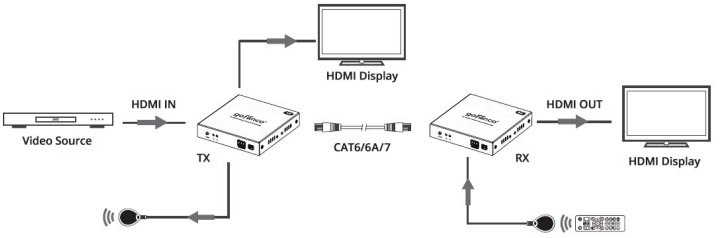
Hardware Installation

To achieve optimal performance, 100% copper CAT6/7 cable is recommended.

1. Power off all devices including your HDMI source and HDMI display(s).
2. Connect your HDMI source to the Transmitter's HDMI In connector.
3. Optional: Connect your HDMI display to the Transmitter's HDMI Out connector with an HDMI cable (HDMI cable not included) for local monitoring of the HDMI signal.
4. Optional: Connect the IR cable to the Transmitter's IR port. See IR Application on page 10 for proper cable connection.
5. Connect a CAT6 cable between the Transmitter's RJ45 Out and Receiver's RJ45 In. For 1-to-many setups, connect the TX and all RX's to the Gigabit switch.
6. Connect your HDMI display to the Receiver's HDMI Out connector with an HDMI cable (HDMI cable not included).
7. Optional: Connect the IR cable to the Receiver's IR port. See IR Application on page 10 for proper cable connection.
8. Plug the included power adapters into the Transmitter's and Receiver's Power Jacks, then plug both power adapters into reliable power outlets.
9. Power on your HDMI source device and HDMI display(s). The extender is ready for use.

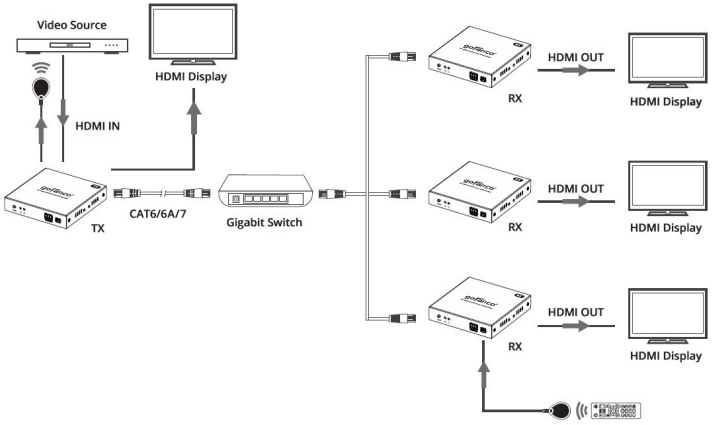
Connection Diagram

1. One-to-One: Extends HDMI signals up to 328ft (100 m) over a single CAT6/7 cable.

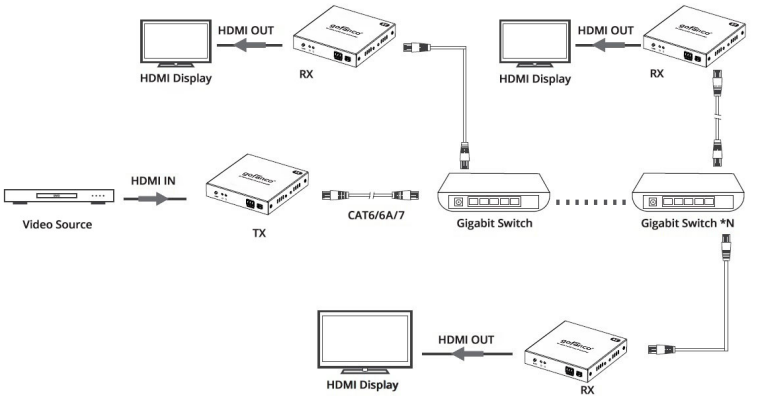


2. One-to-Many: Extend and split using a dedicated Gigabit switch or cascading switches.

   - One Transmitter (TX) to several Receivers (RX).
   - Additional Receivers, (part # HD20Ext1xN-RX), sold separately.
   - Supports up to 100 Receivers (RX).



3. Cascade: Flexible extension with dedicated Gigabit switches. Supports up to 100 Receivers (RX).

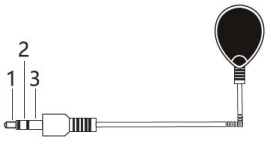


IR Application

HDMI Source Device Control from RX Location

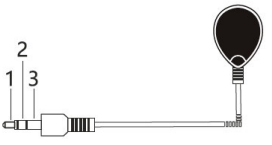
1. Connect the IR Blaster cable to the TX's IR Out port. Face the eye towards your HDMI source device's IR window.
2. Connect the IR Receiver cable to the RX's IR In port.

IR Pin Definition



IR blaster

1. Power
2. IR Signal
3. Null



IR receiver

1. Power
2. IR Signal
3. Grounding

EDID Management

- The default EDID is 4K @60Hz (3840x2160)
- If there's a display connected to the HDMI loopout on the Transmitter (TX), EDID learning of this display will occur automatically and override the default EDID
- 4K to 1080p auto downscaling is supported on the Receiver (RX). This happens when there's a 4K display connected to the TX's HDMI loopout and a 1080p display connected to the RX

Important Notes

- A dedicated Gigabit switch or cascading switches of the same LAN/VLAN is recommended, due to high bandwidth usage
- When cascading switches, do not mix Fast Ethernet (100Mbps) with Gigabit switches. Only use Gigabit switches
- Supports up to 100 Receivers (RX). The bandwidth to each Receiver is 120Mbps, regardless of the number of RX's used
- As long as our devices are in the same LAN or VLAN, they will see with each other. There is no need to configure the IP addresses of our devices
- Only 1 Transmitter (TX) is supported within a LAN or VLAN
- Keep our devices separate from other network devices to avoid network traffic

RS232 Passthrough

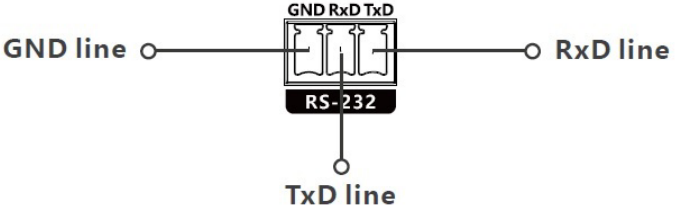
Connect the TX's or RX's RS232 port to your control PC's serial port using an RS232 cable.

COM Port Setting

Baud Rate:	115200 bps
Parity:	None
Data Bits:	8 bit
Stop Bits:	1 bit

RS232 Serial Line Wiring Diagram

Make sure the RS232 serial lines are firmly connected and the serial data lines are oriented correctly. **Note**: If your RS232 serial device does not communicate, try to change the order of the TXD and RXD lines.



FAQ & Solutions

Q1: Why is the Status LED off?

A: 1. Make sure that all equipment is powered on.

2. Make sure the network cable (CAT6/7) is firmly connected between the TX and RX.

3. Make sure the HDMI source device is connected to the Transmitter (TX) and powered on.

Q2: The TV's output image is unstable:

A: 1. Make sure the HDMI source device is connected to the Transmitter (TX) and powered on.

2. Use other HDMI cables to connect.

3. Make sure the network cable (CAT6/7) length is within 100meters

4. If still doesn't work, connect the HDMI source device to the TV directly to see if there's a signal.

Q3: The HDMI extender isn't working properly:

A: 1. Please check the cable lengths are within below:

- HDMI cables: 5 meters

- Network cable (CAT6/7): 100 meters

2. Press the "Reset" button on the TX and RX and reconnect.

Specifications

Bandwidth	18Gbps
HDCP Version	HDCP 1.4/2.2
HDMI Cable Length	Input & Output: 5m (max)
Connection Types	One-to-One One-to-Many Cascading Switches
Resolution	3840x2160@24/30/50/60Hz, 1080p@50/60Hz, 720p@50/60Hz, 1920x1200@60Hz, 2560x1440@60Hz, 2560x1600@60Hz
Transmission Distance	CAT6/7: Up to 328ft (100m)
Latency	300ms
IR Frequency	20kHz - 60kHz
RS232 Baud Rate	2400, 4800, 9600, 38400, 57600, 115200 (default)
Working Temperature	-4 to 140 F (-20 to 60 C)
Storage Temperature	-22 to 158 F (-30 to 70 C)
Humidity	0 to 90% RH (non-condensing)
Power Adapter	TX & RX: DC 5V/1A
Power Consumption	TX: 4.5W (max) RX: 2.5W (max)
Dimensions (LxWxH)	TX & RX: 4.17"x4.1"x0.81" (106x103x20.6 mm)
Weight	TX: 0.6 lb (245g) RX: 0.5 lb (242g)

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