



# HDMI, RS-232, and Bi-Directional IR Extender over IP

## Extend and Distribute HDMI, RS-232, and 2-way IR over a Local Area Network

The HD over IP w/ RS-232 and 2-way IR extends HDMI, RS-232, and bi-directional IR over a Gigabit Local Area Network. Resolutions up to 1080p Full HD and 1920 x 1200 (WUXGA), HDCP, Deep Color, 7.1 channel High Bit Rate digital audio, and Lip-Sync pass-through are supported. The Sender and Receiver units can be automatically or manually configured to unique IP addresses to allow the connection of multiple Senders and Receivers to the same network. Multiple Receiver units can simultaneously connect to any Sender unit within the network including the Gefen KVM over LAN products with HDMI, DVI, or VGA video, to create a virtual crosspoint matrix of just over 65,000 Sender and Receiver units total, depending on the network bandwidth and number of ports on the network switch (see Notes 1 and 2).

IR control can be extended from Sender to Receiver and from Receiver to Sender, allowing the control of source units and displays remotely. The IR input ports on Sender and Receiver units can accommodate both the Gefen powered IR extender EXT-RMT-EXTIRN and electrical IR from automation control devices. RS-232 serial control can also be extended between each Sender and Receiver unit. The built-in web server interface makes control, set-up, and configuration simple and intuitive. When using multiple Senders and Receivers as a "Virtual Matrix", you can connect to any of the Senders within the network by accessing the web interface of each Receiver unit via a web browser on a mobile device or computer, or by using the Gefen KVM/Video over IP Keyboard Switching Controller software (available for download at [www.gefen.com](http://www.gefen.com)). The Gefen HD over IP extender is the perfect solution for large scale remote HD content access and digital signage applications.

## How It Works

If you will be connecting multiple Sender units, use the built-in web interface to assign a unique channel ID to each unit. Use the included HDMI cable to connect an HDMI source to the Sender's HDMI input. Using the included mini-phone-plug-to-female-DB-9 adaptor, connect a DB-9 male-to-female RS-232 cable from the Sender unit to an automation control device. If IR extension between the local and remote locations to control the source and the display is needed, connect IR emitters (Gefen part no. EXT-IREMIT) (one included with Sender unit) to the Sender and Receiver units' IR Out ports and attach them to the IR sensor lenses of the source and the display. Connect IR extenders (Gefen part no. EXT-RMT-EXTIRN) (one included with the Receiver unit) or electrical IR outputs from automation control devices to the IR In/Ext ports of the Sender and Receiver units. Using an HDMI cable, connect the HDMI output of the Receiver unit to your display. Using the included mini-phone-plug-to-male-DB-9 adaptor, connect another male-to-female DB-9 cable from the Receiver unit to the display or another RS-232 controlled device. Connect the Sender and Receiver units to each other directly or through a Gigabit Ethernet switch, using CAT-5e or better cables. Each cable run can be up to 330 feet (100 meters) in length. Connect the included 5V power supplies to the Sender and Receiver units and to available electrical outlets. Power-on all associated equipment. Use the Mode selector within the web interface to optimize the picture for sharper still images or smoother video motion.

## NOTES:

1. A Gigabit switch is required. The Gigabit switch must support 8k jumbo frame packets in order for multicast mode to operate. If your LAN is not dedicated to Gefen KVM-LAN products exclusively, then a managed switch is highly recommended.
2. When using HDCP-encrypted content, only HDMI Senders and Receiver units can accept and display the content.



EXT-HD2IRS-LAN-TX



EXT-HD2IRS-LAN-RX

## Features\*

- Extends HDMI, RS-232, and bi-directional IR over IP, using a Gigabit Local Area Network
- Supports resolutions up to 1080p Full HD and 1920 x 1200 (WUXGA)
- Supported HDMI Features:
  - HDCP
  - Deep Color
  - LPCM 7.1 audio, Dolby® TrueHD, and DTS-HD Master Audio™
  - Lip-Sync pass-through
- Built-in web interface facilitates intuitive set up and operation
- Any of the Senders within a network can be accessed by any Receiver unit via a web browser on a mobile device or computer, or by using the Gefen KVM/Video over IP Keyboard Switching Controller software (available for download at [www.gefen.com](http://www.gefen.com))
- Supports a total of just over 65,000 Sender and Receiver units, depending on the network bandwidth and number of ports on your network switch
- Mode Selector function in web interface for sharpness or motion-optimization of image
- Versatile IR In/Ext ports work with powered Gefen IR extenders and electrical IR from automation control devices
- Field-upgradable firmware via web server interface
- Locking power supply connectors
- RS-232 3.5mm mini-stereo-plug-to-DB-9 adaptors included
- Surface mountable

## Specifications\*

- Maximum Pixel Clock: 165 MHz
- Maximum TMDS Clock: 225 MHz
- Video Input Connector (Sender): (1) HDMI Type A 19-pin, female, locking
- Video Output Connector (Receiver): (1) HDMI Type A 19-pin, female, locking
- RS-232 ports (Sender/Receiver): (1) 3.5mm mini-stereo jack (DB-9 adaptors included)
- IR Emitter ports (Sender/Receiver): (1) 3.5mm mini-mono jack
- IR In/Extender ports (Sender/Receiver): (1) 3.5mm mini-stereo jack
- IR Extender type: EXT-RMT-EXTIRN
- Ethernet connectors (Sender/Receiver): (1) RJ-45, shielded
- Reset buttons (Sender/Receiver): (1) tact-type, recessed
- Link Indicator (Sender/Receiver): (1) LED, amber
- Power Indicator (Sender/Receiver): (1) LED, green
- Power Supply (Sender/Receiver): 5V DC, locking
- Power Consumption (Sender): 6W maximum
- Power Consumption (Receiver): 4W maximum
- Operating Temperature: 0 to +50 °C
- Operating Humidity: +10 to +90%, Relative Humidity, non-condensing
- Storage Temperature: -20 to +85 °C
- Storage Humidity: 0 to +95%, Relative Humidity, non-condensing
- MTBF: 50000 hours
- Dimensions (Sender/Receiver) (W x H x D): 4.3" x 1" x 3.2" (110mm x 26mm x 80mm)
- Unit Weight: EXT-HD2IRS-LAN-TX: 0.4 lbs. (0.2 kg)  
EXT-HD2IRS-LAN-RX: 0.4 lbs. (0.2 kg)
- Shipping Weight: EXT-HD2IRS-LAN-TX: 1.9 lbs. (0.9 kg)  
EXT-HD2IRS-LAN-RX: 1.6 lbs. (0.7 kg)

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