



## Extend HDMI and RS232



EXT-HDMIRS232-CAT5

### The HDMI RS-232 Extender sends flawless HDMI, RS232 and IR signals over two economical CAT-5 cables.

Extending state-of-the-art digital video displays, computer monitors and touch screens has never been easier.

Distances up to 150 feet at 1080p resolution (300 feet at 1080i resolution) are guaranteed to perform beautifully, giving you a reliable method of all-digital extension while streamlining your installation cabling needs.

#### How it works

You simply connect the HDMI RS232 Extender sender unit to your HDMI and RS232 source using the supplied cables. Your RS232 device and the HDMI display plug into the HDMI RS-232 Extender's receiver unit. Two CAT-5 cables connect the sender and the receiver units to each other allowing for up to 300 feet of extension (300 feet at 1080i resolution or 150 feet of extension at 1080p resolution). You can use the optional Gefen IR Emitter cable to extend IR signals.

#### Features:

- Supports resolutions up to 1080p, 2K, and 1920 x 1200
- Sends video at distances of up to 300 feet (1080i) / 150 feet (1080p)
- Small and Compact
- Improved compensation for cable skew
- Audio and video are transmitted digitally over the CAT-5 cable for zero signal loss
- Eliminates equipment noise in the viewing environment
- Extends any IR device
- HDMI/HDCP Compliant

#### Specifications:

- Single-Link Range: 1080p/1920x1200
- Input Video Signal: 1.2V p-p
- Input DDC Signal: 5V p-p (TTL)
- HDMI Connector: type A 19-pin Female
- RS-232 Input Connector: DB-9 female
- RS-232 Output Connector: DB-9 male
- Conforms to RS-232 Standards
- Link Connector: RJ-45 Shielded
- Power Supply: 5V DC
- Power Consumption: 20 Watts (maximum)
- Dimensions: 3.4 x 5.9 x 1.3 inches
- Shipping Weight: 5 lbs.

# Gefen

## HDMI™ & RS-232 Extender

EXT-HDMIRS232-CAT5

User Manual



[www.gefen.com](http://www.gefen.com)

1080P  
PROGRESSIVE

HDMI™  
HIGH DEFINITION MULTIMEDIA INTERFACE

HD TV

HD DVD

Blu-ray Disc™

## ASKING FOR ASSISTANCE

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### Technical Support:

Telephone (818) 772-9100  
(800) 545-6900

Fax (818) 772-9120

### Technical Support Hours:

8:00 AM to 5:00 PM Monday thru Friday.

### Write To:

Gefen Inc.  
c/o Customer Service  
20600 Nordhoff St  
Chatsworth, CA 91311

[www.gefentv.com](http://www.gefentv.com)  
[support@gefen.com](mailto:support@gefen.com)

### Notice

Gefen Inc. reserves the right to make changes in the hardware, packaging and any accompanying documentation without prior written notice.

**HDMI RS-232 Extender** is a trademark of Gefen Inc.  
**HDMI™** is a trademark of HDMI.org

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# INTRODUCTION

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Congratulations on your purchase of the HDMI RS-232 Extender. Your complete satisfaction is very important to us.

## Gefen

Gefen delivers innovative, progressive computer and electronics add-on solutions that harness integration, extension, distribution and conversion technologies. Gefen's reliable, plug-and-play products supplement cross-platform computer systems, professional audio/video environments and HDTV systems of all sizes with hard-working solutions that are easy to implement and simple to operate.

## HDMI RS-232 Extender

Extending state-of-the-art digital video displays, computer monitors and touch screens has never been easier. Distances up to 150 feet at 1080p resolution (300 feet at 1080i resolution) are guaranteed to perform beautifully, giving you a reliable method of all-digital extension while streamlining your installation cabling needs.

## How It Works

You simply connect the HDMI RS232 Extender sender unit to your HDMI and RS232 source using the supplied cables. Your RS232 device and the HDMI display plugs into the HDMI RS-232 Extender's receiver unit. Two CAT-5 cables connect the sender and the receiver units to each other allowing for up to 300 feet of extension (300 feet at 1080i resolution or 150 feet of extension at 1080p resolution). You can use the optional Gefen IR Emitter cable to extend IR signals.

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# OPERATION NOTES

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## READ THESE NOTES BEFORE INSTALLING OR OPERATING THE HDMI RS-232 EXTENDER

- Use two industry standard CAT-5, CAT-5e or CAT-6 cables to operate the HDMI RS-232 Extender. Gefen recommends CAT-6 cabling for maximum performance.
- For 1080i video, maximum extension is 300 feet (91 meters).
- For 1080p video, maximum extension is 150 feet (45 meters).
- IR repeater functionality is only from the receiving unit to the sending unit. IR data cannot be transmitted from the sending unit to the receiving unit.

# FEATURES

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## Features

- Supports resolutions up to 1080p, 2K, and 1920 x 1200
- Sends video at distances of up to 300 feet (1080i) / 150 feet (1080p)
- Small and Compact
- Improved compensation for cable skew
- Audio and video are transmitted digitally over the CAT-5, CAT-5e or CAT-6 cable for zero signal loss
- Eliminates equipment noise in the viewing environment
- Extends any IR device

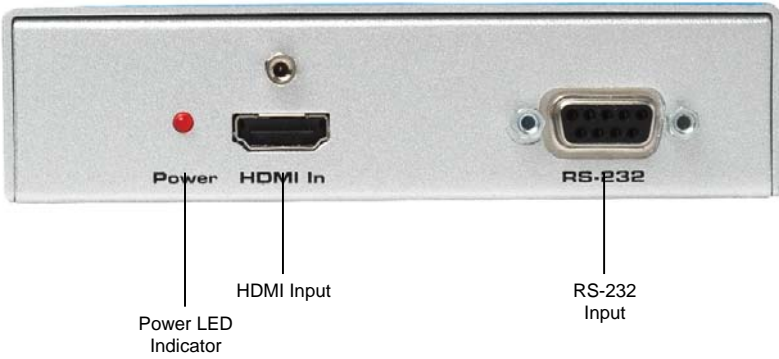
## Package Includes

- (1) HDMI RS-232 Extender Sending Unit
- (1) HDMI RS-232 Extender Receiving Unit
- (1) 6 foot HDMI Cable (M-M)
- (1) 6 foot RS-232 Cable (M-M)
- (2) 5V DC Power Supply
- (1) User's Manual

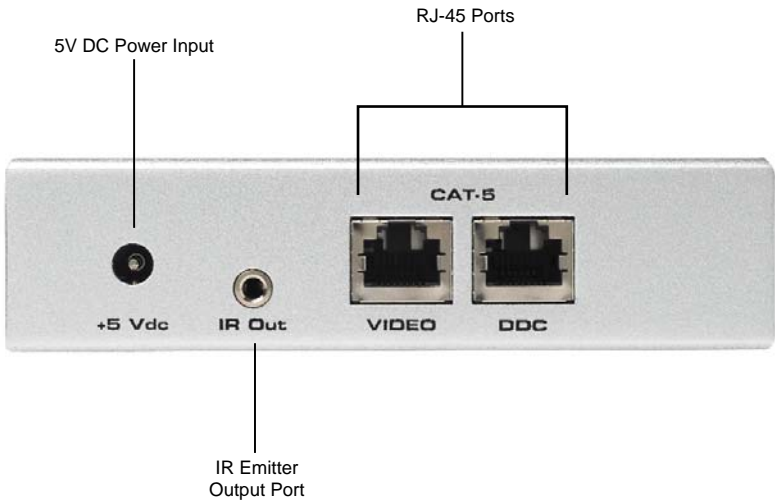
# SENDER PANEL DESCRIPTIONS

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## Front Panel



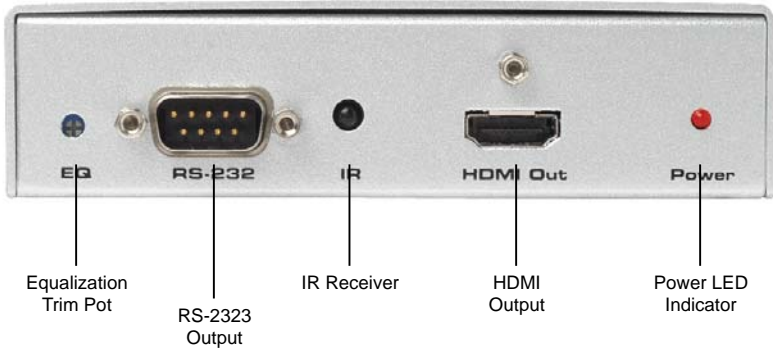
## Back Panel



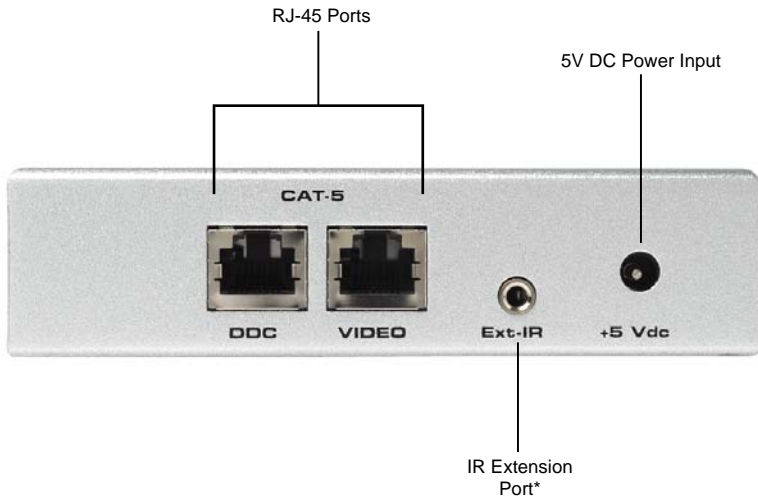
# RECEIVER PANEL DESCRIPTIONS

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## Front Panel



## Back Panel



\*An optional IR extension (part # EXT-RMT-EXTIR) may be connected to this port to extend the position of the IR sensor. This is to allow installation flexibility by having the ability to put the HDMI RS-232 unit in a hidden location and still retain IR functionality.



## **CONNECTING AND OPERATING THE HDMI RS-232 EXTENDER**

1. Connect the HDMI source to the HDMI RS-232 Extender sending unit's HDMI input port using the supplied HDMI cable.
2. Connect the RS-232 source to the HDMI RS-232 Extender sending unit's RS-232 input port using the supplied DB-9 serial cable.
3. For IR repeater functionality, please connect the IR emitter's mini-jack (sold separately, part # EXT-2IREMIT) into the HDMI RS-232 Extender sending unit. Place the IR emitter directly on or above the IR receiver of the desired source device.
4. Connect the HDMI RS-232 Extender sending and receiving units together using two user supplied CAT-5, CAT-5e or CAT-6 cables.

**NOTE:** If field terminating network cable, please adhere to the TIA/EIA568B specification. Please see page 7 for more information.

5. Connect the display to the HDMI output port of the HDMI RS-232 Extender receiving unit using a user supplied HDMI cable.
6. Connect the RS-232 device to the RS-232 output port of the HDMI RS-232 Extender receiving unit using a user supplied DB-9 serial cable.
7. Plug the 5V DC power supply into the HDMI RS-232 Extender sending unit.

**NOTE:** In most scenarios, the 5V DC external power supply for the receiving unit will not be required. Operational power is supplied by the sending unit via the connected CAT-5, CAT-5e or CAT6 cable. If the power LED indicator on the receiving unit is not on, please check to make sure that the RJ-45 cables are not crossed (DDC to video and video to DDC).

8. Power on the display.
9. Power on the source.

## HDMI RS-232 EXTENDER CONFIGURATION

The HDMI RS-232 Extender has built-in auto equalization that will automatically tune out any unwanted video noise. This feature is reliable with premium cable runs up to a maximum of 130 feet. It may be necessary to disable this feature if there is either no video being displayed on initial start-up, there is video noise in the image, or the cable run exceeds 130 feet. First, verify that all the proper connections have been made and that all devices are powered on before attempting to disable auto equalization.

### HOW TO EQUALIZE THE VIDEO SIGNAL

The sender and receiver units both have sets of dip switches located on the underside of their casings. There is a piece of silver metallic tape that must be removed to expose these dip switches. Each unit carries a bank of 4 dip switches. Dip switches 1 and 2 on both the sending and receiving units are used in this procedure. Dip switches 3 and 4 are not used. By default, all dip switches on the sending and receiving units should be in the OFF position (Auto EQ On). To turn off auto equalization, turn dip switch 1 on the receiving unit to the ON position (Auto EQ off). With this setting please follow the steps below to equalize the picture.

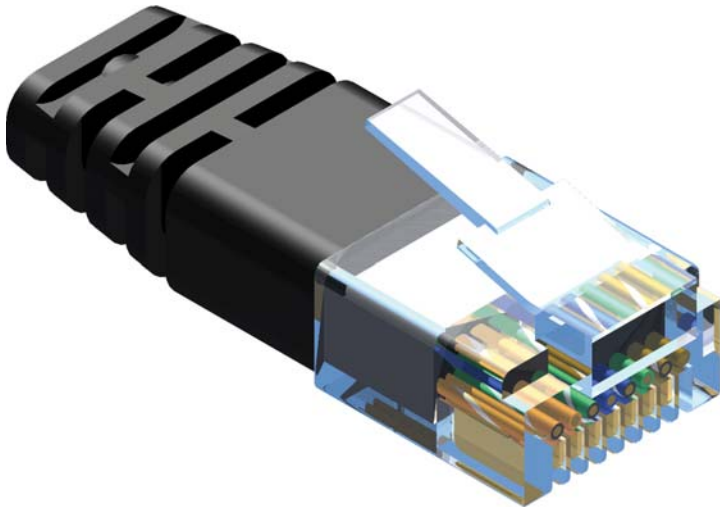
1. Insert a small flat head tool into the trim pot on the receiver unit.
2. Turn the trim pot in a clockwise fashion until it comes to a stop. Do not force the trim pot beyond this point. Doing so may break the trim pot.
3. Slowly turn the trim pot counter-clockwise in millimeter increments until the image stabilizes and all video noise disappears.
4. Carefully remove the adjustment tool.

**NOTE:** If your cable run is beyond 130 feet, or the following steps do not produce any video, it may be necessary to increase the boost from the sending unit. Use the chart below to increase the boost by changing the sender dip switches. Once a new boost setting is set, repeat steps 1 through 4 from above.

Sender Dip Switch Settings		
Setting	Switch 1	Switch 2
No Boost (Default)	OFF	OFF
Medium Boost	OFF	ON
High Boost	ON	OFF
Very Low Boost	ON	ON

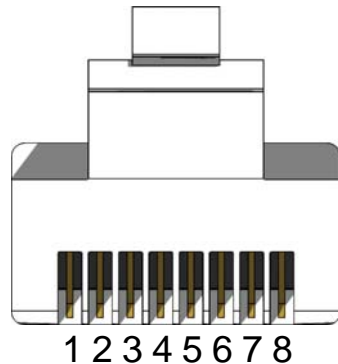
Receiver Dip Switch Settings		
Setting	Switch 1	Switch 2
Manual EQ	ON	OFF
Auto EQ (Default)	OFF	OFF

## NETWORK CABLE WIRING DIAGRAM



Gefen has specifically engineered their products to work with the TIA/EIA-568-B specification. Please adhere to the table below when field terminating cable for use with Gefen products. Failure to do so may produce unexpected results and reduced performance.

Pin	Color
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown



CAT-5, CAT-5e, and CAT-6 cabling comes in stranded and solid core types. Gefen recommends using solid core cabling. CAT-6 cable is also recommended for best results.

Each cable run must be one continuous run from one end to the other. No splices or use of punch down blocks.

## **SPECIFICATIONS**

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Single-Link Range .....	1080p/1920x1200
Input Video Signal .....	1.2V p-p
Input DDC Signal .....	5V p-p (TTL)
HDMI Connector .....	Type A 19 pin Female
RS-232 Input Connector .....	DB-9 Female
RS-232 Output Connector .....	DB-9 Male
RS-232 Standard .....	RS-232C
Link Connector .....	RJ-45 Shielded
Power Supply .....	5V DC
Power Consumption .....	20 Watts (maximum)
Dimensions .....	3.4 x 5.9 x 1.3 inches
Shipping Weight .....	5 lbs.