



# Wireless RS232 Extender

**EXT-WRS232**

**User Manual**



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



## ASKING FOR ASSISTANCE

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### Notice

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# INTRODUCTION

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

## **Gefen**

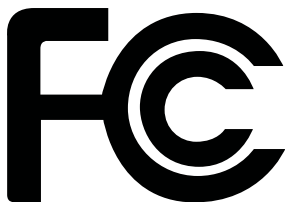
Gefen delivers innovative, progressive computer and electronics add-on solutions that harness integration, extension, distribution and conversion technologies. Gefen's reliable, plug-and-play products supplement cross-platform computer systems, professional audio/video environments and HDTV systems of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

## **The Gefen Wireless RS-232 Extender**

Extend the connection and control of RS-232 devices up to 100 feet away from your computer, without the hassle of using RS-232 cables. Control your favorite Gefen products or any devices that use the RS-232 serial control interface.

## **How It Works**

Simply connect the Gefen Wireless RS-232 Extender Sender unit to a computer (or other RS-232 control device) using the supplied RS-232 serial cable. Connect the Receiver unit to the device being controlled using another RS-232 cable. Select the correct baud rate (either 9600 or 19200) on both the Sender unit and Receiver unit, using the DIP switch bank on the bottom of both units. Connect the included 5V DC power supplies to both the Sender unit and Receiver unit. The Gefen Wireless RS-232 Extender will connect a computer wirelessly to the device attached to the Receiver unit, as if the RS-232 host device were attached directly to the client.



**This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation**

### **INSTRUCTION TO THE USER**

This equipment 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 residential installation. 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and Receiver unit
- Connect the equipment into an outlet on a circuit different from that to which the Receiver unit is connected
- Consult the dealer or an experienced radio/TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of the manufacturer could void the user's authority to operate this equipment.

### **INDUSTRY CANADA (IC) STATEMENT:**

Applicant's Name: **Gefen, LLC**

Manufacturer's Trade Name: **Gefen**

### **Model / IC ID Numbers:**

**EXT-WRS232R (IC:9057A-EXTWRS232R)**

**EXT-WRS232S (IC:9057A-EXTWRS232S)**

The wireless radio of this device complies with IC RSS-210 Industry Canada. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

This device has been designed to operate with the antennas provided, and having a maximum gain of 2.5 dBi. Antennas not included with this product or having a gain greater than 2.5 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 Ohms.

# FEATURES

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## Features

- Extends any RS-232 compliant device up to 100 feet (30 meters) from a computer or other RS-232 controller
- Metal enclose immune to EMI interference
- No cables are required for extension
- Secure locking power connector prevents accidental power disruption due to stress on power connector
- Two selectable baud rates: 9600 or 19200 (please see page 12 for details)
- Unlimited number of nodes when using multiple Sender units and Receiver units in a wireless RS-232 network (one-to-many, many-to-one, or many-to-many)
- Perfect for digital signage applications
- Quick and easy set up

## Package Includes:

- (1) Wireless RS-232 Sender unit Unit
- (1) Wireless RS-232 Receiver unit Unit
- (1) 6-foot RS-232 serial cable
- (2) 5V DC External locking power supply
- (1) User's Manual



## **OPERATION NOTES**

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### **READ THESE NOTES BEFORE INSTALLING OR OPERATING THE WIRELESS FOR RS-232**

The Wireless RS232 Extender is capable of operating at a baud rate of either 9600 or 19200. Please see page #12 for details on setting the correct baud rate for your RS232 device.

The metal housing is immune to EMI interference and the external antenna is capable of extending RS-232 control up to 100 feet (30 meters) through 8 brick walls. Multiple Sender units can also operate simultaneously, allowing greater flexibility in a wireless RS-232 solution. Please see page #13 for details on setting up a wireless RS232 network.

Although the Sender unit can be used without external power, the RS-232 protocol does not outline specific guidelines for sending power to another RS-232 device. In most cases, only a small amount of power can be extracted (~10mA) from the DTR (Data Terminal Ready) and RTS (Ready To Send) lines. This is only suitable for lower power devices (e.g. mouse devices). If there is not enough available power, the LED stays in the OFF state.

**SENDER UNIT PANEL LAYOUT**

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***Front Panel***



***Back Panel***



## SENDER UNIT PANEL DESCRIPTION

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**1 RS-232 Input Port**

This port accepts the female end of an RS-232 serial cable.

**2 Power LED**

The LED will glow red when power is applied to the unit.

**3 Antenna**

Transmits RS-232 data to the Receiver unit.

**4 5V DC Power Receptacle**

This port accepts power from one of the included 5V DC power supplies.

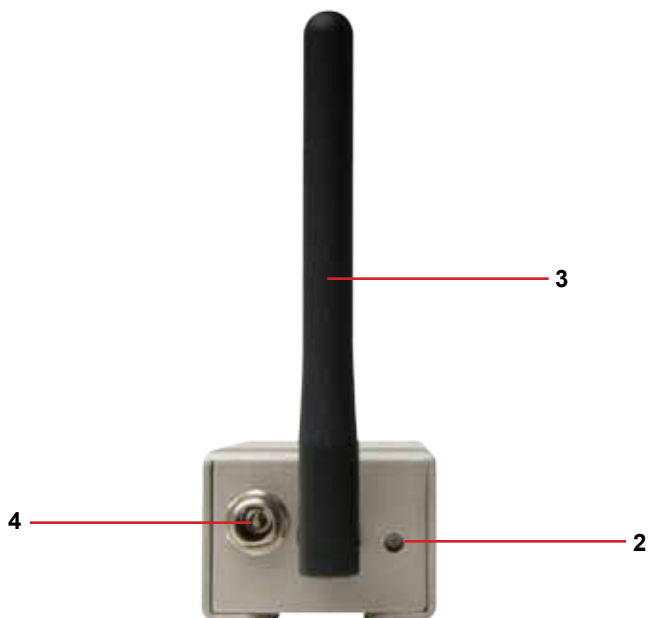
## RECEIVER UNIT PANEL LAYOUT

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**Front Panel**



**Back Panel**



## RECEIVER UNIT PANEL DESCRIPTIONS

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**1 RS-232 Output Connector**

This port accepts the male end of an RS-232 serial cable.

**2 Power LED**

The LED will glow red when power is applied to the unit.

**3 Antenna**

Receives RS-232 data from the Sender unit.

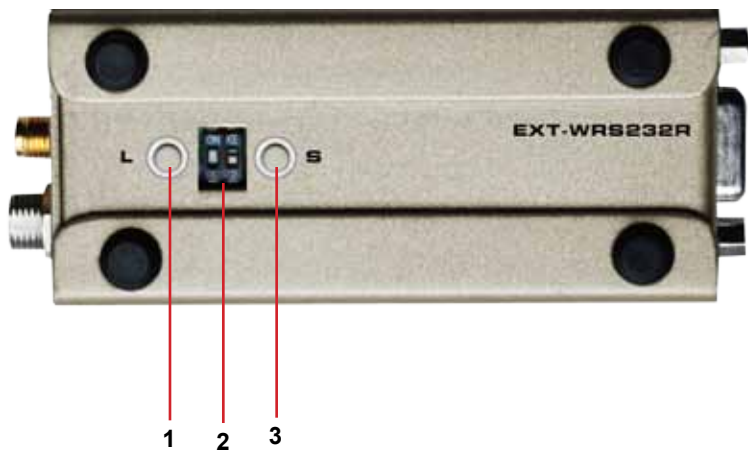
**4 5V DC Power Receptacle**

This port accepts power from one of the included 5V DC power supplies.

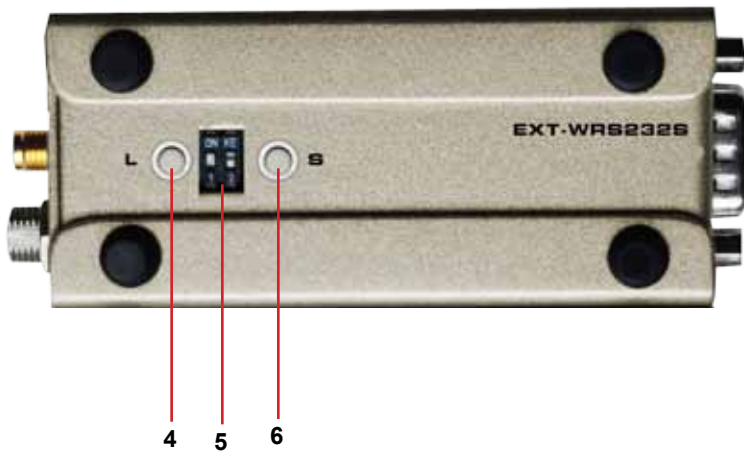
## SENDER / RECEIVER UNIT LAYOUT (BOTTOM)

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### Underneath Receiver unit



### Underneath Sender unit



## SENDER / RECEIVER UNIT DESCRIPTIONS (BOTTOM)

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**1 Receiver Unit L -Tact Switch**

Used to pair a Receiver unit with a Sender unit.

**2 Receiver Unit DIP Switch Bank**

Used to switch between network modes and select the baud rate.

**3 Receiver Unit S -Tact Switch**

Used to pair a Receiver unit with a Sender unit.

**4 Sender Unit Unit L -Tact Switch**

Used to pair a Receiver unit with a Sender unit.

**5 Sender Unit Unit DIP Switch Bank**

Used to switch between network modes and select the baud rate.

**6 Sender Unit Unit S -Tact Switch**

Used to pair a Receiver unit with a Sender unit.

**Note:** Please refer to page 12 to 16 for details.

# CONNECTING AND OPERATING THE WIRELESS RS-232 EXTENDER

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## How to Connect the Wireless RS-232 Extender

1. Connect a RS-232 cable from the controlling device to the RS-232 input on the Sender unit using the supplied RS-232 serial cable.
2. Connect another RS-232 cable from the RS-232 output connector on the Receiver unit to the RS-232 port on the device you wish to control.
3. Connect the included 5V DC power supplies to the power receptacles on both the Sender unit and Receiver unit.
4. Refer to the section below on how to set the baud rate and using the tact switches for configuring RS-232 device assignment.

## How to Operate the Wireless RS-232 Extender

### Setting the Baud Rate

RS-232 devices will function at different baud rates. It is important that the correct baud rate be set on both the Wireless RS-232 Sender unit and Wireless RS-232 Receiver unit to establish successful communication between the RS-232 controller (host) and the RS-232 device you wish to manage (client).

On the bottom of both the Sender unit and Receiver unit is a bank of two (2) DIP switches. You will need to remove the piece of silver adhesive tape on the bottom of the units to expose the DIP switch bank. DIP2 controls the baud rate. Setting DIP2 to the ON position sets the baud rate to 19200bps. Set DIP2 to the OFF position if your RS-232 devices run at 9600bps. Make sure that both the Receiver unit and the Sender unit have DIP2 set to the same position.

### DIP Switch Guide

DIP switch / State	ON	OFF
1	Turns a device into network mode. While in this mode the device will communicate only with associated devices.	Turns off the network mode. The device will communicate with any other device.
2	Sets baud rate to 19200 [Bd].	Sets baud rate to 9600 [Bd].



# CONNECTING AND OPERATING THE WIRELESS RS-232 EXTENDER

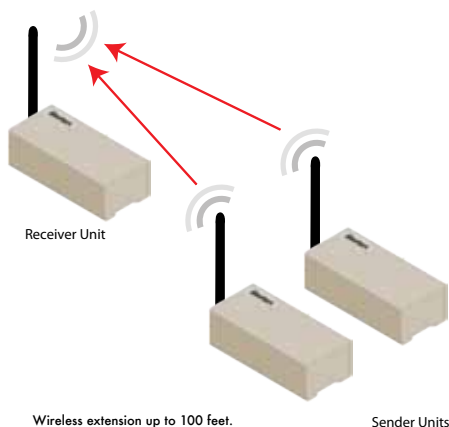
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## Wireless RS-232 Extender Networks

In addition to a simple Sender unit-Receiver unit topology pair, the Wireless RS-232 Extender can be configured to communicate between multiple RS-232 Sender units and RS-232 Receiver units. This allows the creation of a wireless RS-232 network. You may configure your Wireless RS-232 Extender network to operate in the following modes:

1. One Sender unit communicating with multiple Receiver units.
2. Several Sender units communicating with one Receiver unit.
3. Several Sender units communicating with several Receiver units.

## Controlling a Single RS-232 Device from Different Locations



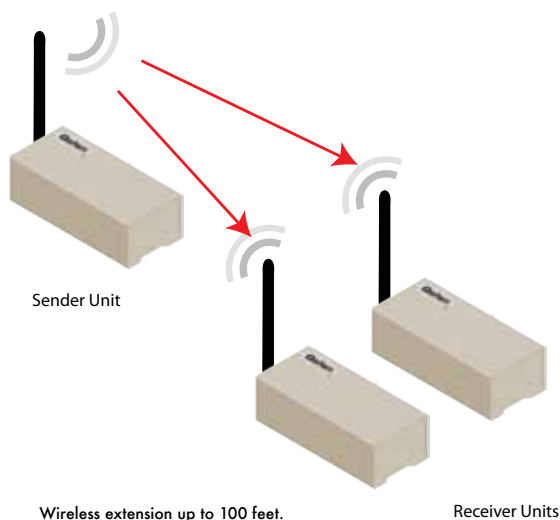
1. Using the DIP switch chart as a guide, set DIP switch #2 to the baud rate used by the devices you wish to control. All Wireless RS-232 Receiver units must be set to the same baud rate rate.
2. Set DIP switch #1 to the OFF position on each Wireless RS-232 Receiver unit. This disables Network Mode and allows the Wireless RS-232 Receiver unit to listen to multiple devices.
3. Power on both the Sender unit and the Receiver unit.
4. Depress the L-Tact switch on the Receiver unit to place the Receiver unit in “learning” mode. The power LED on the Receiver unit will turn green in learning mode. Learning mode will stay active for 10 seconds.green.

## CONNECTING AND OPERATING THE WIRELESS RS-232 EXTENDER

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5. Depress the S-Tact switch on the Sender unit. During this process, an Electronic Serial Number (ESN) will be sent from the Sender unit to the Receiver unit. The LED on the front of the unit will blink 3 times between red and green. This indicates the successful completion of the learning process.
6. Repeat steps 4 and 5 for each Sender unit. It is not necessary to have the Sender unit and Receiver units connected to the host and client during the learning process.
7. Once all Receiver units have been configured, you should now be able to control your client RS-232 device from multiple locations.

### Controlling Several RS-232 Devices from a Single Location



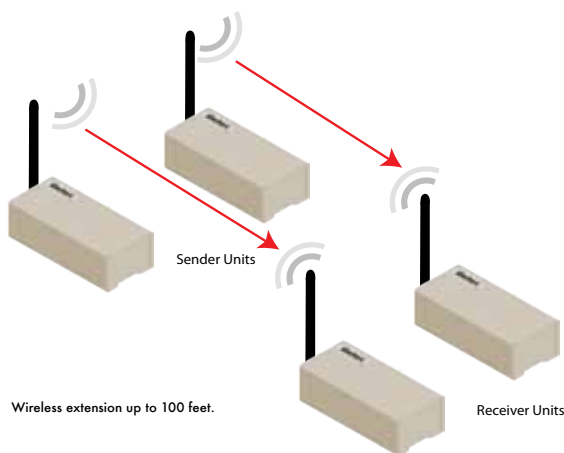
1. Using the DIP switch chart set DIP switch #2 to the correct baud rate used by your RS-232 devices. Since only one Receiver unit will be controlling multiple Receiver units, you must ensure that both Sender unit and each Receiver unit are set to the same baud rate.
2. Set DIP switch #1 to the OFF position on each Receiver unit to disable Network Mode and allow all Receiver units to communicate with a single Sender unit.
3. Power on both the Sender unit and the Receiver unit.
4. Depress the L-Tact switch on the Receiver unit to place the Receiver unit in "learning" mode. The power LED on the Receiver unit will turn green in learning mode. Learning mode will stay active for 10 seconds.

## CONNECTING AND OPERATING THE WIRELESS RS-232 EXTENDER

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5. Depress the S-Tact switch on the Sender unit. During this process, an Electronic Serial Number (ESN) will be sent from the Sender unit to the Receiver unit. The LED on the front of the unit will blink 3 times between red and green. This indicates the successful completion of the learning process.
6. Repeat steps 4 and 5 for each Receiver unit. It is not necessary to have each Receiver unit connected to the client (device being controlled) during the learning process.
7. Once all Receiver units have been configured, you should be able to control several RS-232 devices from a single location.

### Controlling Separate RS-232 Devices with Different Sender units and Receiver units



1. Using the DIP switch chart as a guide, set DIP switch #2 to the correct baud rate used by each RS-232 device. Since you will be controlling separate RS-232 devices, ensure each RS-232 Sender unit and Receiver unit is set to the baud rate used by each device.
2. Set DIP switch #1 to the ON position on each Sender unit and Receiver unit to enable Network Mode. This will ensure that each Sender unit and Receiver unit pair will not interfere with the other.
3. Power on both the first Sender unit and the Receiver unit pair.
4. Depress the L-Tact switch on the first Receiver unit to place the Receiver unit in “learning” mode. The power LED on the Receiver unit will turn green while in learning mode. Learning mode will stay active for 10 seconds.

## **CONNECTING AND OPERATING THE WIRELESS RS-232 E**

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5. Depress the S-Tact switch on the first Sender unit. During this process, an Electronic Serial Number (ESN) will be sent from the Sender unit to the Receiver unit. The LED on the front of the unit will blink 3 times between red and green. This indicates the successful completion of the learning process.
6. Repeat steps 4 and 5 for each Sender unit / Receiver unit Pair. It is not necessary to have each Sender unit / Receiver unit connected to the host / client during the learning process.
7. Once each Sender unit / Receiver unit pair has been configured, you can control several RS-232 devices from a single location.

### **Erasing the Electronic Serial Numbers (ESNs)**

If you want to remove a Receiver unit and place it within another RS-232 wireless network, ESNs cannot be deleted individually. You must clear the entire list of "learned" ESNs. To clear the ESN list, hold down the L-Tact button on the Receiver unit for 10 seconds. The LED on the front of the unit will alternate between red and green then return to red which will indicate completion of the erasing process.

# SPECIFICATIONS

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RF Band.....	2.4 GHz
RS-232 Sender unit.....	DB-9 (F)
RS-232 Receiver unit.....	DB-9 (F)
Power Supply.....	5V DC, Locking (Sender unit / Receiver unit)
Power Consumption.....	100mW (max)
Dimensions.....	1.2" W x 3.8" D x 1.2" H
Shipping Weight.....	2 lbs

## WARRANTY

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Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment 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 ninety (90) days from the day of reshipment to the Buyer.

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

1. Proof of sale may be required in order to claim warranty.
2. Customers outside the US are responsible for shipping charges to and from Gefen.
3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, please visit Gefen's Warranty web page at <http://www.gefen.com/kvm/aboutus/warranty.jsp>

## PRODUCT REGISTRATION

**Please register your product online by visiting Gefen's web site at <http://www.gefen.com/kvm/Registry/Registration.jsp>**



\* MA - WRS 232 \*

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