

RP-1

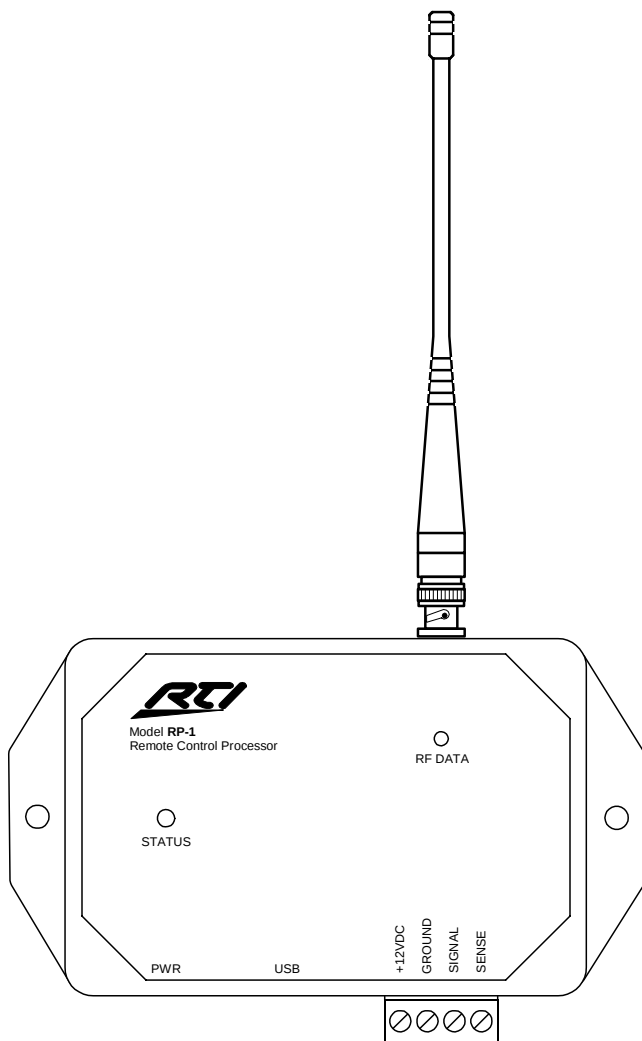
Remote Control Processor



RP-1

Operation & Installation Guide

v1.0



FEDERAL COMMUNICATIONS COMMISSION NOTICE

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 the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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.

Copyright © 2005
Remote Technologies Incorporated
All rights reserved.

SAFETY SUGGESTIONS

Read Instructions. Read all safety and operating instructions before operating the unit.

Retain Instructions. Keep the safety and operating instructions for future reference.

Heed Warnings. Adhere to all warnings on the unit and in the operating instructions.

Follow Instructions. Follow operating instructions and instructions for use.

Heat. Keep the unit away from heat sources such as radiators, heat registers, stoves, etc., including amplifiers that produce heat.

Power Sources. Connect the unit only to a power supply of the type described in the operating instructions, or as marked on the unit.

Power Cord Protection. Route power supply cords so that they are not likely to be walked on or pinched by items placed on or against them, paying particular attention to the cords at plugs, at convenient receptacles, and at the point at which they exit from the unit.

Water and Moisture. Do not use the unit near water—for example, near a sink, in a wet basement, near a swimming pool, near an open window, etc.

Object and Liquid Entry. Do not allow objects to fall or liquids to be spilled into the enclosure through openings.

Servicing. Do not attempt any service beyond that described in the operating instructions. Refer all other service needs to qualified service personnel.

Damage Requiring Service. The unit should be serviced by qualified service personnel when:

- The power supply cord or the plug has been damaged.
- Objects have fallen or liquid has been spilled into the unit.
- The unit has been exposed to rain.
- The unit does not appear to operate normally or exhibits a marked change in performance.
- The unit has been dropped, or the enclosure damaged.

WARNING !

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THE UNIT TO RAIN OR MOISTURE.

LIMITED WARRANTY AND DISCLAIMER

Remote Technologies Incorporated warrants its products for a period of one (1) year from the date of purchase from Remote Technologies Incorporated or an authorized Remote Technologies Incorporated distributor.

This warranty may be enforced by the original purchaser and subsequent owners during the warranty period, so long as the original dated sales receipt or other proof of warranty coverage is presented when warranty service is required.

Except as specified below, this warranty covers all defects in material and workmanship in this product. The following are not covered by the warranty:

Damage resulting from:

1. Accident, misuse, abuse, or neglect.
2. Failure to follow instructions contained in this Guide.
3. Repair or attempted repair by anyone other than Remote Technologies Incorporated.
4. Failure to perform recommended periodic maintenance.
5. Causes other than product defects, including lack of skill, competence or experience of user.
6. Shipment of this product (claims must be made to the carrier).
7. Being altered or which the serial number has been defaced, modified or removed.

Remote Technologies Incorporated is not liable for any damages caused by its products or for its failure of its products to perform, including any lost profits, lost savings, incidental damages, or consequential damages.

Remote Technologies Incorporated is not liable for damages based upon inconvenience, loss of use of the product, loss of time,

interrupted operation, commercial loss, any claim made by a third party or made by you for a third party.

Remote Technologies Incorporated's liability for any defective product is limited to repair or replacement of the product, at our option.

If your *RP-1* Processor needs service, please contact Remote Technologies Incorporated by telephone, fax or E-mail for return information. ***Please do not return products to Remote Technologies Incorporated without return authorization.***

All rights are reserved. No part of this document may be photocopied, reproduced, or translated without the prior written notice of Remote Technologies Incorporated.

The information contained in this document is subject to change without notice. Remote Technologies Incorporated shall not be liable for errors or omissions contained herein or for consequential damages in connection with the furnishing, performance, or use of this guide.

Microsoft and Windows are registered trademarks of Microsoft Corporation. Other brands and their products are trademarks or registered trademarks of their respective holders.

RP-1, It's Under Control, TheaterTouch, TheaterTouch Designer, and the RTI logo are trademarks of Remote Technologies Incorporated.

Contents

FEDERAL COMMUNICATIONS COMMISSION NOTICE	I
SAFETY SUGGESTIONS.....	II
LIMITED WARRANTY AND DISCLAIMER	IV
CONTENTS.....	VII
CHAPTER 1. WELCOME.....	1
IMPORTANT NOTES	1
PRODUCT CONTENTS.....	2
UNPACKING AND INSPECTION	2
CHAPTER 2. INTRODUCTION	3
FEATURES	3
NOTE.....	3
RP-1 REFERENCE	4
RP-1 CONNECTION OPTIONS.....	5
RP-1 REMOVABLE HEADER TERMINAL DESCRIPTION.....	5
RP-1 REMOVABLE HEADER TERMINAL DESCRIPTION.....	6
CHAPTER 3. INSTALLATION.....	7
INSTALLATION LOCATION	7
MOUNTING	8
CONNECTING THE AC ADAPTER	8
CONNECTING IR EMITTERS TO THE SIGNAL OUTPUT	8
CONNECTING THE SENSE INPUT	8
CONNECTING THE ANTENNA	9
CHAPTER 4. OPERATION.....	11
RF DATA LED	11
STATUS LED	11
PROGRAMMING THE RP-1	12
SETTING THE ZONE CODE.....	12
CHAPTER 5. TROUBLESHOOTING	13
RP-1 DOES NOT FUNCTION PROPERLY	13
POWER SENSE INPUT DOES NOT FUNCTION PROPERLY	14
RP-1 USB PROGRAMMING PORT DOES NOT WORK	14

CHAPTER 6. SERVICE AND SUPPORT 15

 CONTACTING RTI 15

 RTI TECHNICAL SUPPORT 15

 SHIPMENT OF RP-1 FOR SERVICE 17

CHAPTER 7. SPECIFICATIONS 19

APPENDIX A. MOUNTING HOLE PATTERN 21

Chapter 1. Welcome

Thank you for using the *RP-1* Remote Control Processor. The *RP-1* is a low-cost programmable control system that is designed to automate the operation of audio and video systems such as home theaters. It interfaces with a system's equipment by using a single IR output port. In addition, the *RP-1* is able to provide system power on/off status. All of the system's control commands and programming (macros) are stored in non-volatile Flash memory within the *RP-1*. These commands are executed by RF trigger codes using one of RTI's remote control interface products.

The *RP-1* is the perfect control system for single room installations such as home theaters, media centers, and bedrooms.

The *RP-1* requires the *TheaterTouch Designer*™ programming software. This software is available to RTI dealers only, and can be downloaded from the RTI website (www.rticorp.com).

Before using the *RP-1*, please read and follow all of the instructions in this guide.

IMPORTANT NOTES

Please read these important notes about the *RP-1*:

- The *RP-1* should be placed in an area where it is around normal room temperature (50°F to 90°F).
- Do not let the *RP-1* get wet. It should not be handled with wet hands or placed in an area where it could get wet.
- Do not subject the *RP-1* to smoke, dust, or vibrations.

- Use only the power supply that is provided with the *RP-1*. Using the wrong type of power supply may result in permanent damage.
- Do not disassemble the unit. Service and repair should be performed by an authorized technician only.

PRODUCT CONTENTS

Contents within the box include the following items:

- One (1) *RP-1* Remote Control Processor
- One (1) Installation Guide
- One (1) Universal Power Supply
- One (1) Power Cord
- One (1) Antenna

UNPACKING AND INSPECTION

After unpacking your new *RP-1* Remote Control Processor, save all of the packing materials in case you ever have to ship the unit.

Thoroughly inspect the *RP-1* and packing materials for signs of damage. Report any damage to the carrier immediately. Report any equipment malfunctions to RTI or an authorized RTI distributor.

Chapter 2. Introduction

FEATURES

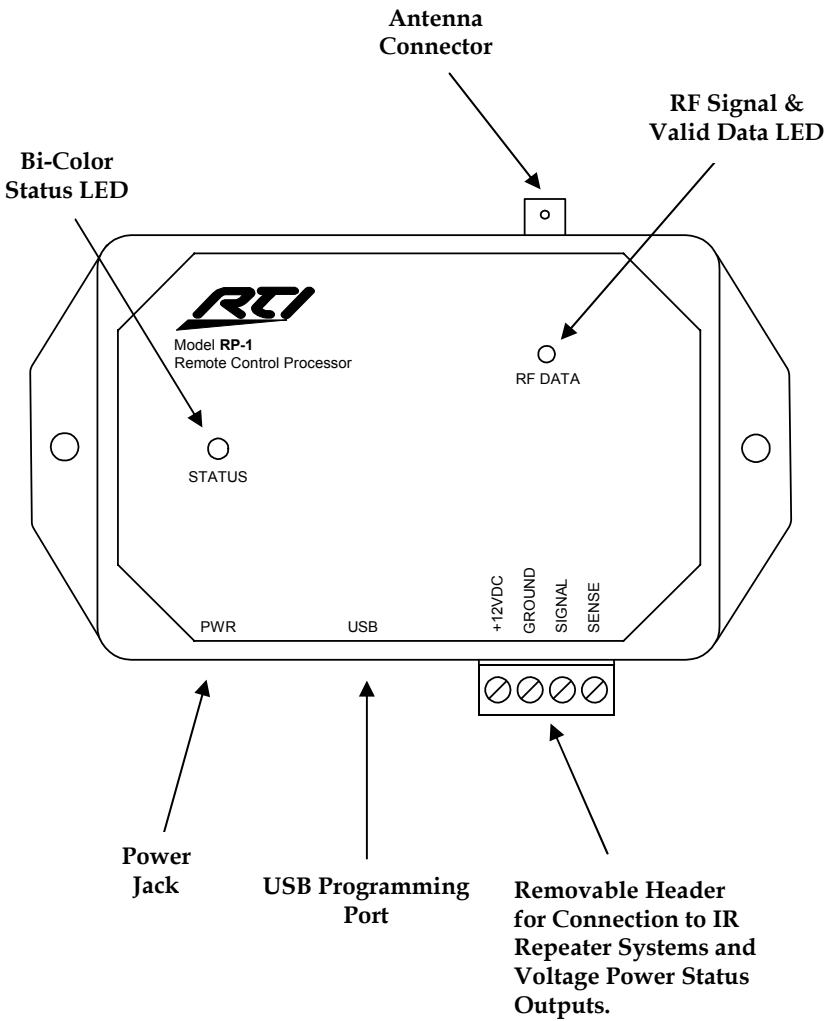
The *RP-1* provides superior quality and reliability as well as these specific features:

- One high output IR port for control up to 1000 feet away.
- Output port is compatible with industry standard IR emitters and repeater systems. The output port incorporates both short-circuit and overload protection.
- One voltage power sensing input for system status feedback.
- Non-volatile Flash memory for program storage.
- One USB programming port.

NOTE

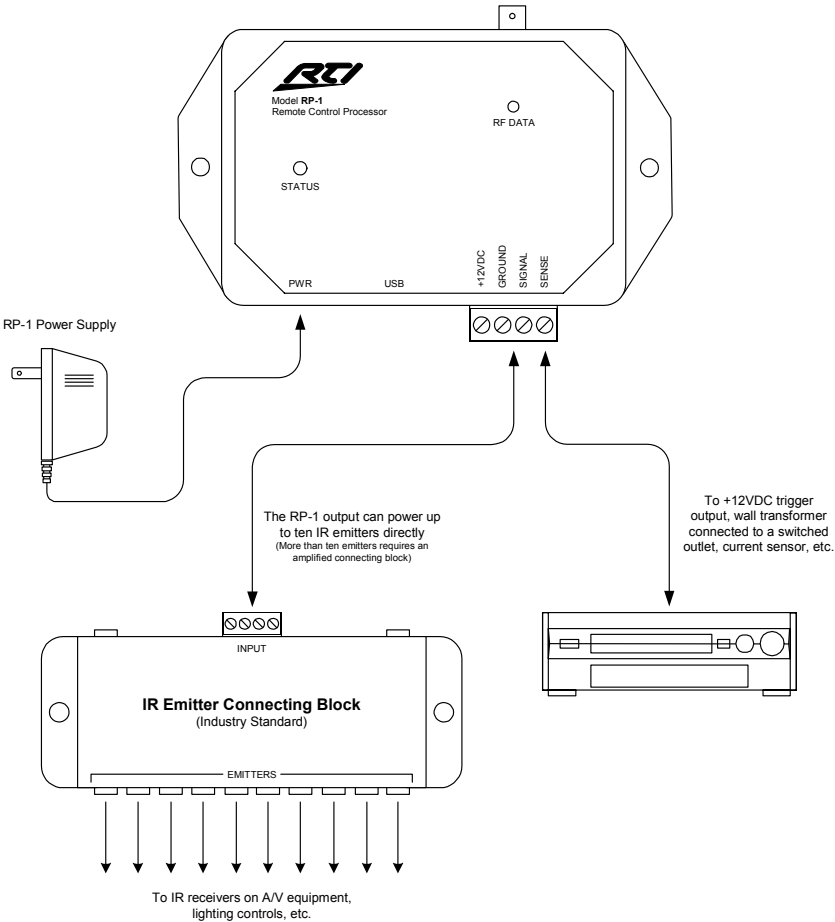
The *RP-1* output port is compatible with infrared (IR) commands that have carrier frequencies between 15kHz and 460kHz, as well as those commands that do not use a carrier. This covers virtually all of the remotes that exist to date.

RP-1 REFERENCE



RP-1 CONNECTION OPTIONS

The following diagram shows the most common connection scenarios. There are also many other connection possibilities and devices that can be controlled.



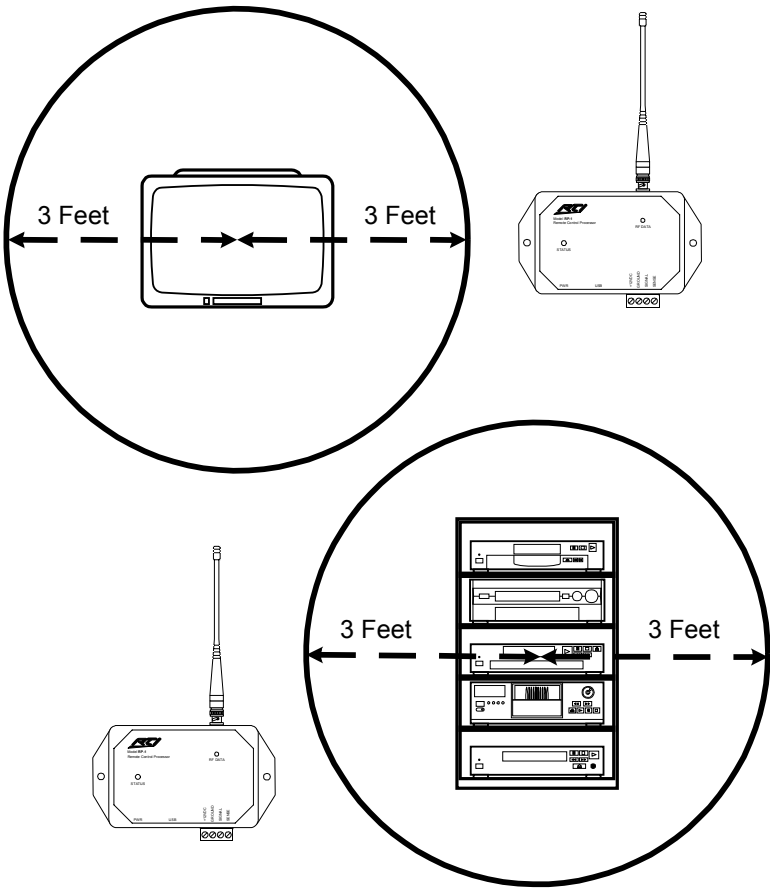
RP-1 REMOVABLE HEADER TERMINAL DESCRIPTION

TERMINAL NAME	DESCRIPTION
+12VDC	Positive power supply connection. This is internally tied to the Power jack. This can be used to power the <i>RP-1</i> over a long distance if an AC wall outlet is not available near by.
GROUND	Common ground connection. Use this ground reference for any device that is connected to the +12VDC, SIGNAL, OR SENSE terminals.
SIGNAL	High current (200mA) IR output connection. This can be used to power up to 10 infrared mini-emitters, an IR blaster, or extending IR control over a long distance (1000 ft. max).
SENSE	Voltage power sensing input connection. This can be connected to a trigger output or switched outlet (using a small wall-mount power supply) on A/V equipment, current sensors, light sensors, etc. The ON state sense voltage is 3VDC - 20VDC. The OFF state sense voltage is 0VDC - 2VDC.

Chapter 3. Installation

INSTALLATION LOCATION

For best results install the *RP-1* at least three (3) feet away from video monitors and other sources of strong electro-magnetic energy.



MOUNTING

The *RP-1* can be mounted on either a shelf or a wall (see Appendix A for mounting hole details). Since the IR output can drive up to 1000 feet of wire, the *RP-1* does not need to be mounted near the equipment being controlled.

CONNECTING THE AC ADAPTER

The included AC adapter should be connected to the POWER jack on the *RP-1*. The power (+12VDC) LED will turn-on and the bi-color Status LED will toggle on and off three times to confirm that the unit is running properly.

Use only the supplied AC adapter to power the *RP-1*. Using a different power supply could result in poor performance or damage to the *RP-1*.

CONNECTING IR EMITTERS TO THE SIGNAL OUTPUT

The *RP-1* is compatible with industry standard IR connecting blocks. Connect the SIGNAL and GROUND terminals to the signal input and ground terminals on the connecting block. The connecting block can be wired up to 1000 feet away from the *RP-1* using #22 AWG (minimum) wire. The *RP-1* can drive up to ten IR mini-emitters directly. More than ten emitters requires an amplified connecting block.

This output has short circuit protection, but does not provide a series resistor for current limiting. **It should not be connected directly to IR emitters.**

CONNECTING THE SENSE INPUT

The SENSE input is a DC voltage level sensor that uses a fixed threshold to determine if the connected device is on or off.

This pin can be connected to a +12VDC trigger output or switched AC outlet (using a small wall-mount power supply) on A/V equipment, current sensors, light sensors, etc. Connect the SENSE and GROUND terminals to the output and ground connections on the connected device. The ON state sense voltage is 3VDC - 20VDC. The OFF state sense voltage is 0VDC - 2VDC.

CONNECTING THE ANTENNA

Connect the included antenna directly to the BNC connector on the *RP-1*. Do not attempt to locate the antenna away from the *RP-1*, or connect multiple antennas to the *RP-1*.

Chapter 4. Operation

RF DATA LED

The *RP-1* constantly monitors the air for signals modulated at 433MHz. The RF Data LED indicates the presence of these signals:

RF DATA LED

Off = No 433MHz signal detected

Red = Noise or invalid data detected

Green = Valid data detected

STATUS LED

The status LED will illuminate Green if a valid system trigger code is detected. The LED will stay on while the *RP-1* is busy processing the action associated with the trigger code.

The status LED will flicker Green if an invalid system trigger code is detected. A trigger code is invalid if there is no action associated with it (i.e. the *RP-1* programming does not match the programming in the device that is transmitting the trigger code), or if the system zone code does not match.

The status LED will illuminate Red if the *RP-1* does not contain a valid program.

The status LED will also illuminate Green to indicate an active USB connection. A communication problem is indicated if the status LED is illuminated red while the USB cable is attached to a PC.

PROGRAMMING THE RP-1

The *RP-1* must be programmed to operate. All programming is done using RTI's *TheaterTouch Designer*™ software, and is downloaded into the unit using the USB port.

Important Note: The *RP-1* will not respond to trigger codes or execute commands while the USB cable is attached to a PC. You must detach the *RP-1* USB port from your PC for normal operation.

The software allows you to create actions (e.g. commands and macros) that are associated with button presses on one or more RTI remote controls. The software transparently creates all of the system trigger codes, and generates the correct download for every device in the system. Unless you implement some of the software's advanced features, programming a system that uses an *RP-1* is just as easy as programming one that doesn't.

SETTING THE ZONE CODE

If the *RP-1* is installed in close proximity to others, the system Zone Code can be changed in the *TheaterTouch Designer*™ software. This allows up to 256 separate control systems to operate in the same general area such as multi dwelling units or homes with more than one media system.

Chapter 5. Troubleshooting

If you are having problems with your *RP-1* Remote Control Processor, please read these troubleshooting tips and frequently asked questions before contacting technical support.

If you continue to have problems, see **Chapter 6** for more information on contacting RTI technical support.

RP-1 DOES NOT FUNCTION PROPERLY

- Verify that the USB cable is removed from either the *RP-1* or the PC. The *RP-1* will not function normally while there is an active USB connection with a PC.
- Verify the *RP-1* is receiving a valid signal. The RF DATA LED should flash green when a valid signal is present.
- Make sure the original factory power supply is plugged into a known good, non-switched outlet and the connector is seated properly on the *RP-1*. The +12VDC LED should be turned on.
- Verify the button on the remote is programmed to output system trigger codes. Also verify that the programmed Zone ID matches the *RP-1*.
- Try re-programming both the *RP-1* and the remote control to make sure the programming is up-to-date (i.e. “in sync”) in each of them.
- Make sure the *RP-1* is mounted away from strong electro-magnetic energy sources.
- Make sure you are using known good IR emitters, and they are attached to the correct location on the device being controlled.

POWER SENSE INPUT DOES NOT FUNCTION PROPERLY

- Verify that the proper conditional statement is used in the *TheaterTouch Designer*™ software.
- Make sure you are using a known good IR emitter, and it is attached to the correct location on the device being controlled.

RP-1 USB PROGRAMMING PORT DOES NOT WORK

- Verify that your PC is using Windows 2000® or higher. The *TheaterTouch Designer* software requires a USB device driver that may not be installed on earlier versions of Windows.
- Make sure you are using the programming cable that was supplied by RTI and that both ends are connected securely.
- Make sure the PC detects the presence of the T2+. If it doesn't, unplug the USB cable, wait for about ten seconds, and plug it in again.
- If the download fails after some data has been transferred, try re-sending the program.

Chapter 6. Service and Support

For news about the latest updates, new product information, and new accessories, please visit our web site at:

www.rticorp.com

CONTACTING RTI

For general info, you can contact RTI at:

Tel. (952) 253-3100

Fax (952) 253-3131

info@rticorp.com

RTI TECHNICAL SUPPORT

At RTI, customer service and satisfaction is an utmost priority. If you are encountering any problems or have a question about your RTI product, please contact RTI Technical Support for assistance.

RTI provides technical support by telephone, fax or e-mail. For the highest quality service, please have the following information ready, or provide it in your fax or e-mail.

- ◆ Your Name
- ◆ Company Name
- ◆ Telephone Number
- ◆ E-mail Address
- ◆ Product model and serial number (if applicable)

If you are having a problem with hardware, please note the equipment in your system, a description of the problem, and any troubleshooting you have already tried.

If you are having a problem with software, please note what version you have installed, the operating system on your PC, a description of the problem, and any troubleshooting you have already tried.

If you are calling about a software or programming question or problem, please be at your computer when you place your call. This will considerably speed up the troubleshooting process.

For technical support or assistance with your *RP-1*, software, or accessories, contact RTI at:

(952) 253-3137

support@rticorp.com

www.rticorp.com/support

For questions regarding service or repair of your *RP-1*, contact RTI at:

(952) 253-3136

service@rticorp.com

www.rticorp.com/service

Please do not return products to RTI without return authorization.

SHIPMENT OF RP-1 FOR SERVICE

RTI will pay all labor and material expenses for all repairs covered by this product's warranty. If necessary repairs are not covered by warranty, or if a unit is examined which is not in need of repair, you may be charged for the repairs or examination.

If it is necessary to ship the *RP-1* Remote Control Processor for service:

- ◆ Please pack it securely (we suggest that it be insured).
- ◆ Do not include accessories such as power cords or manuals unless instructed to do so.

You must pay any shipping charges incurred in getting your *RP-1* Remote Control Processor to RTI. RTI will pay reasonable return shipping charges via a carrier of our choice to any destination within the United States if the repairs are covered under warranty.

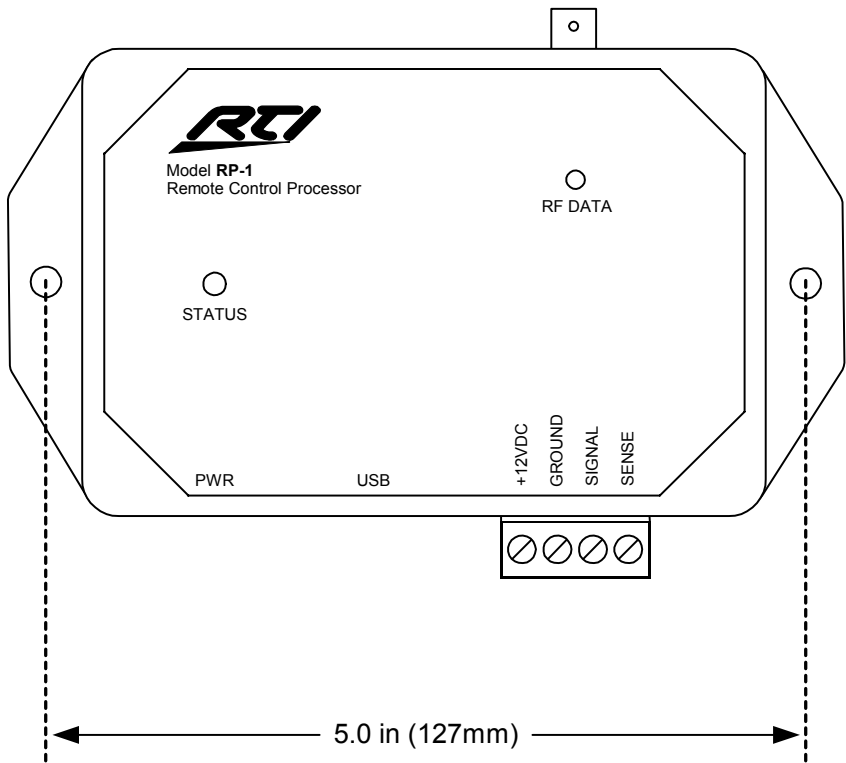
A copy of the original dated sales receipt must be provided whenever warranty service is required. You will need this receipt to establish the date of purchase.

Chapter 7. Specifications

Power Supply:	+12VDC , 500mA
Number of Output Ports:	One (1) High Power IR port
IR Output Drive:	200mA maximum
Infrared Transmission Bandwidth:	15kHz - 460kHz
Power Sense Input:	Off = 0VDC - 2VDC On = 3VDC - 20VDC
Mounting:	Wall-Mount or Free Standing
Dimensions:	5.5" (140mm) L x 3.3" (84mm) W x 1.4" (36mm) H (width dimension does not include antenna or connectors)
Weight:	7.0 oz. (198g)

All specifications are subject to change without notice.

Appendix A. Mounting Hole Pattern



It's Under Control®



Remote Technologies Incorporated

7651 Anagram Drive
Eden Prairie, MN 55344
Tel: 952-253-3100
Fax: 952-253-3131
www.rticorp.com