

Installation and Operation Guide

It's Under Control®

RKM-1

Multi-Room Audio Keypad



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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.
2. This device must accept any interference received including interference that may cause undesired operation.



DECLARATION OF CONFORMITY (DOC)

The Declaration of Conformity for this product can be found on the RTI website at: www.rticorp.com/declaration

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:

- 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 has been 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 RKM-1 Multi-Room Audio Keypad 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.**

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CHAPTER 1 | WELCOME

Thank you for using the RKM-1 Multi-Room Audio Keypad.

Perfect for multi-room audio control, the RKM-1 is designed to have a clean, elegant style. Sized for a single gang electrical box, the RKM-1 incorporates eight fully-programmable hard buttons and a customizable display film which provides feedback of power status, selected source, and volume level.

The RKM-1 can directly control almost any audio/video component up to 1000 feet away using its infrared output port. When used with the available RTI automation devices, the RKM-1 is capable of infrared routing, relay control, power sensing and RS-232 communications for advanced control. Using the available software drivers from RTI, the RKM-1 can communicate bidirectionally with many popular multi-zone receivers (when used together with two-way enabled RTI control processors).

Because RTI's remote control products are sold only through professional installers/programmers, and never directly to consumers, it is our philosophy to not incorporate programming capability directly into our products. Instead, we are committed to providing our dealers with the hardware and software tools that allow them to create reusable programming databases and templates in the most efficient and reliable way possible.

IMPORTANT NOTES

Please read these important notes about the RKM-1:

- The RKM-1 should be placed in an area where it is around normal room temperature (between 60°F to 90°F).
- Avoid installing the RKM-1 in a location where it can come in contact with direct sunlight.
- Do not install the RKM-1 directly adjacent to thermostats. Heat generated by the RKM-1 may affect temperature measurement.
- Do not use sharp objects on the buttons. It is designed to operate with a touch of your finger.
- Do not let the RKM-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 RKM-1 to smoke, dust, or vibrations. The display may be damaged from excessive shock or vibration.
- Only use the power supply that is specified for the RKM-1. Using the wrong type of power supply may result in damage.
- Do not disassemble the unit. Service of the RKM-1 should be performed by authorized personnel only.

CHAPTER 1 | PRODUCT CONTENTS

Contents within the box include the following items:

- One (1) RKM-1 Multi-Room Audio Keypad
- One (1) Operation Guide
- One (1) Display Film Sheet
- One (1) Display Lens

UNPACKING AND INSPECTION

After unpacking your new RKM-1 Multi-Room Audio Keypad, save all of the packing materials in case you ever have to ship the unit.

Thoroughly inspect the RKM-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.

COMPATIBILITY

The RKM-1 and *Integration Designer*™ software are compatible with infrared (IR) commands with 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.

SOFTWARE REQUIREMENTS

The recommended minimum system requirements needed to run the *Integration Designer*™ software are as follows:

- Windows 2000®, Windows XP® or later version.
- A free USB port.
- At least 256 Megabytes of RAM.
- At least 250 Megabytes of free disk storage.
- Screen resolution of 800x600 with 16-bit color.
- Optional printer for printing reports.

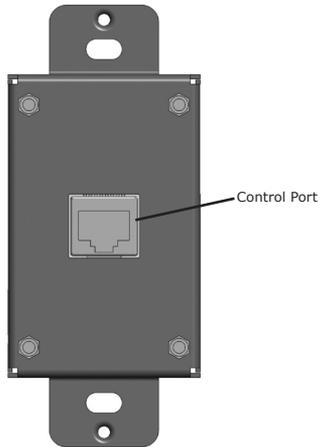
CHAPTER 2 | FEATURES

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

- Provides feedback from many popular multi-zone receivers (when used together with two-way enabled RTI control processors).
- Use any standard Decora® type faceplate.
- Fits in single gang electrical box.
- Eight selectable sources.
- Backlit volume level indicator.
- Open architecture allows control of virtually any audio/video component.
- Non-volatile Flash memory stores your system configuration even when power is lost.
- IR output port drives up to 1,000 feet of wire for standalone control.
- Optional modules for voltage and video sensing (to monitor power status of equipment).
- Optional RTI accessory modules enable RS-232 control.
- Field upgradable firmware.
- USB Programming.

CHAPTER 2 | FEATURES

KEYPAD REFERENCE



CHAPTER 3 | INSTALLATION AND OPERATION

MOUNTING

The RKM-1 is designed for flush-mount installations in walls or cabinets. It requires an available mounting depth of 1.5 inches (38mm), including cables, from the front surface of the wall. Normally, the RKM-1 is mounted in a standard single-gang electrical box or mud ring.

POWER

The RKM-1 is turned-on by simply applying power to it.

RTI provides two power supply solutions which are sold separately:

PS16-1 Power Supply

- 16VDC, 1.6Amp
- Provides power for up to six RKM-1 keypads
- Part Number: 40-210285-22

MRP-64 Multi-Room Control Processor

- Includes 12VDC, 4.0Amp power supply
- Provides power for up to six RKM-1 keypads
- Provides a convenient connection hub
- Part Number: 10-210177-19

CHAPTER 3 | INSTALLATION AND OPERATION

DISPLAY LENS FILM INSTALLATION

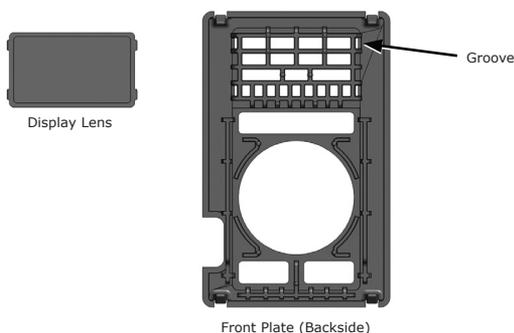
The display can be altered to closely match the audio sources that will be controlled by changing the lens film that is used. A sheet with ten lens films are included with the RKM-1, each with different source configurations.

NOTE: The RKM-1 ships with the Display Lens uninstalled. For first-time installation, skip to step 3.

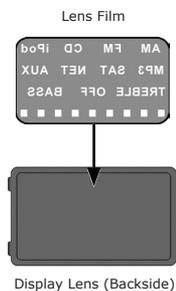
1. Remove front plate by pressing a screwdriver into slots at bottom of RKM-1 to release tabs:



2. Place screwdriver in groove on backside of front plate and press down to pry display lens off:



3. Choose lens film that most closely matches the audio sources in your system.
4. Align film inside the raised edge on backside of display lens (letters appear to be reversed from the backside so they appear correct once the lens is installed).
5. Once aligned - press film firmly into place.
6. Snap display lens into front plate, paying attention to the correct orientation.
7. Snap front plate on to RKM-1 enclosure.

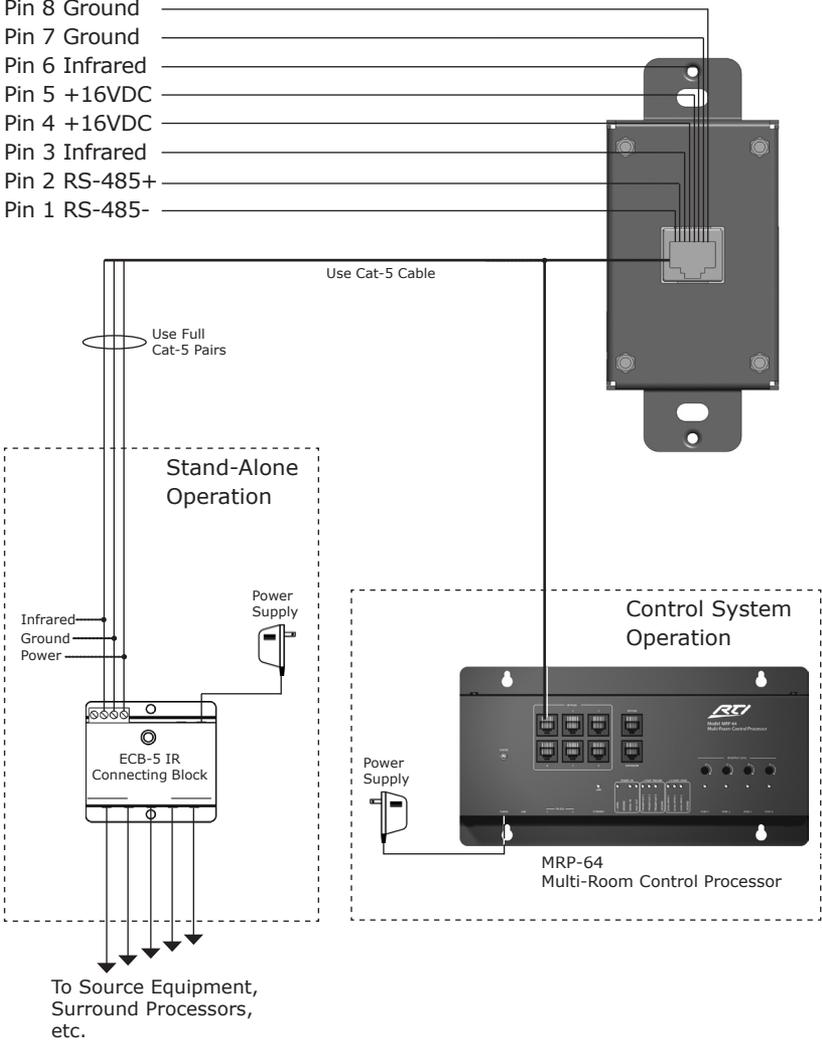


CHAPTER 3 | INSTALLATION AND OPERATION

WIRING DIAGRAM

Control Port Pin Out

- Pin 8 Ground
- Pin 7 Ground
- Pin 6 Infrared
- Pin 5 +16VDC
- Pin 4 +16VDC
- Pin 3 Infrared
- Pin 2 RS-485+
- Pin 1 RS-485-



CHAPTER 3 | INSTALLATION AND OPERATION

PROGRAMMING

Display

The RKM-1 has a flexible, programmable interface. Once the display lens film has been chosen and installed contains the audio sources that will be controlled, the display backlights are enabled/disabled within the Integration Designer™ software to match the sources that will be used. Using the available software drivers from RTI, the RKM-1 can communicate bidirectionally with many popular multi-zone receivers providing feedback of power status, selected source, and volume level (when used together with two-way enabled RTI control processors).

Function Buttons

The function buttons can be programmed using Integration Designer™ to control each music source discretely. In the most basic configuration, the buttons can be used to execute a single function or if needed they can be programmed to execute complex multi-step macros. When the RKM-1 is used with a control processor, it is capable of control via IR or RS-232.

OPERATION

Music Source Selection

Click the Select Music button to scroll through the sources that have been enabled in Integration Designer™. Once the source has been selected, the backlight will flash for two seconds and a command or macro will be sent to turn on the selected music source or. The display backlight will be lit for the source that is active.

On/Off Buttons

- The On button will send a command or macro to turn on the last music source that was selected prior to turning it off.
- The Off button will send a command or macro to turn off the music for this zone and Off will be lit on the display. When Off is selected, no commands can be sent from the function buttons.

CLEANING

Occasional cleaning may be required, depending on use.

To clean your RKM-1, lightly dampen a lint-free cloth with a glass cleaner or mild detergent, and wipe the buttons, surrounding bezel, and faceplate.

CHAPTER 4 | SPECIFICATIONS

Power Supply	+9VDC to +16VDC, 350mA max
Backlights	Blue LED - Eight sources; Nine step volume level indicator.
Infrared Output Port	200mA output, Drives up to 1000 ft (300 m) of wire.
Operating Temperature	+32°F to +122°F (0°C to +50°C)
Operating Humidity	5% to 95% Non-condensing
Device Capability	Total number of devices is limited only by memory.
Macro Capability	Unlimited steps in a single macro. Total number of macros is limited only by memory. Macro capability on every button.
Communications	USB programming port
Enclosure	Formed Steel, black powder coat
Front Plate	High-impact molded ABS plastic - white, metallic gray or black.
Mounting	Mounts into single gang box.
Front Plate Dimensions (H x W)	Purchased separately (Decora® Type).
Dimensions (H x W x D)	4.1 in (104mm) x 1.8 in (46mm) x 1.0 in (25mm)
Installation Cut-Out (H x W)	2.8 in (71mm) x 1.8in (46mm)
Total Depth in Wall	.75 in (19mm) Plus Cables
Weight	4 oz (284 g)
Warranty	One Year (Parts & Labor)

Decora® is a registered trademark of Leviton Manufacturing Co. Inc.

All specifications subject to change without notice.

CHAPTER 5 | TROUBLESHOOTING

If you are having problems with your RKM-1 Multi-Room Audio Keypad, please read the information below before contacting technical support.

If you continue to have problems, see Chapter 7 for more information on contacting RTI technical support.

UNIT DOES NOT POWER ON

- Make sure the external power supply is properly connected to the RKM-1, and it is functioning properly.
- Make sure the RJ-45 plug is attached properly to the Cat-5 cable.

USB COMMUNICATION PROBLEMS

- Verify that the RKM-1 is present in the Human Interface Devices section of the Device Manager within the Windows® Control Panel.
- 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 RKM-1. If it doesn't, unplug the USB cable, wait for about ten seconds, and plug it in again. Make sure both ends of the USB cable are connected securely.
- If the download fails after some data has been transferred, try resending the program.

IR CODE PROBLEMS

- If you are using an IR repeater system, make sure it is working correctly with the original OEM remote. If not, you will need to troubleshoot the IR repeater system.
- If you are still having problems, try adjusting the IR code "Minimum Repeats" value in the Integration Designer™ programming software.

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 you computer when you place your call. This will considerably speed up the troubleshooting process.

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

(952) 253-3137

support@rticorp.com

www.rticorp.com

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

(952) 253-3136

service@rticorp.com

www.rticorp.com

Please do not return products to RTI without return authorization.

CHAPTER 6 | SERVICE AND SUPPORT

Shipment of RKM-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 RKM-1 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 RKM-1 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.

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