Kramer Electronics, Ltd.

USER MANUAL

Model:

RC-8IR

Universal Room Controller

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups[1] that are clearly defined by function.

Congratulations on purchasing your Kramer **RC-8IR** Universal Room Controller, which is designed to let an instructor enter a multimedia classroom and operate an A/V system with ease.

The package includes the following items:

- **RC-8IR** device housing and separate faceplate
- One 3.5mm to IR emitter control cable
- This user manual[2]
- Configuration software

2 Getting Started

This user manual is written for the end user. Refer to the separate online RC Configuration and Installation Guide for details of how to install and configure the Universal Room Controller[3]

We recommend that you:

- Review the contents of this user manual
- Use Kramer high performance high resolution cables[4]

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1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com

3 That provides information about how to set up the system. This online guide may well be updated on a regular basis. For the latest online guide, go to http://www.kramerelectronics.com

4 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com
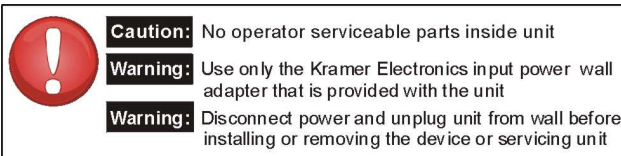
3 Overview

Kramer's **RC-8IR** one-gang wall plate is a highly versatile controller interface that acts as an all-in-one extended remote control panel for control of A/V equipment—especially projectors and associated equipment—in any room (such as classrooms, boardrooms, or auditoriums). It streamlines operations and simplifies control by integrating audio, video, and computer-video sources into a centralized system.

The **RC-8IR** includes:

- An Ethernet port for configuration and control[1]
- Configurable backlit buttons[2] to set up any supported[3] command
- Two bidirectional RS-232 wired serial ports, for universal display (for example, projectors) and switcher control, and one RS-485 serial port
- Two relays for the simplified and centralized control of room functions (such as lighting, closing blinds, screen settings, and so on)
- Two IR control ports
- An IR-learner for the customized control of external sources, receiving the IR commands from different remote transmitters without the need for an external IR remote control unit
- Macro mode operation, for programming up to 15 commands with the press of a single button, and summing up to a total of 120 commands
- Support for firmware upgrade

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise-levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances and position your Kramer **RC-8IR** away from moisture, excessive sunlight and dust

Caution:	No operator serviceable parts inside unit
Warning:	Use only the Kramer Electronics input power wall adapter that is provided with the unit
Warning:	Disconnect power and unplug unit from wall before installing or removing the device or servicing unit

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1 Of up to five machines with unique IP addresses

2 Six buttons for RC-6IR, and eight buttons for the RC-8IR

3 To be configured by the system integrator only

4 Your Universal Room Controller
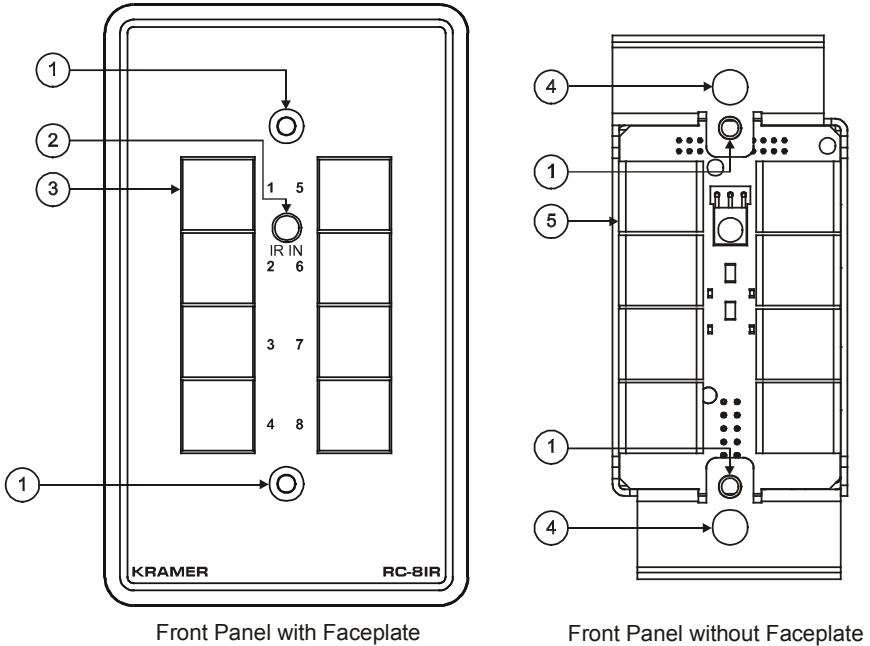
Figure 1 and Table 2 define the **RC-8IR** front panel:

Front Panel with Faceplate   Front Panel without Faceplate

Figure 1: RC-8IR Front Panel

Table 1: RC-8IR Front Panel Features

#	Feature	Function
1	Faceplate Attachment Holes	Use to attach the faceplate to the device housing (see Table 2)
2	*IR IN* Receiver	Accepts IR remote commands (for the IR-learner feature)
3	Configurable Control Buttons (Macro Buttons)	Control the room and the A/V equipment (from 1 to 8)
4	Housing Attachment Holes	Use to install the device housing
5	Button Caps	Button caps with "wings" on the left and right sides (8)

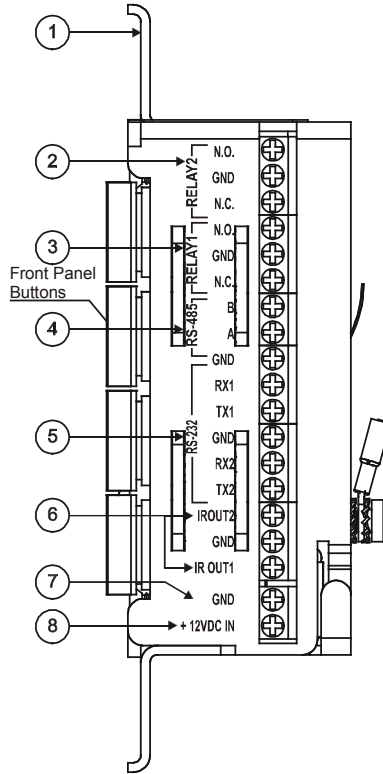Figure 2 and Table 2 define the **RC-8IR** right side panel:

Figure 2: RC-8IR Right Side Panel

Table 2: RC-8IR Right Side Panel Features

#	Feature	Function
1	Housing and Faceplate Support	Device housing supports the faceplate
2	*RELAY2*	Connect each relay to a room item (such as lighting, screen settings, blinds, and so on)[1]
3	*RELAY1*	
4	*RS-485* Terminal Block Connector	Connect to the RS-485 detachable terminal block on a switcher or PC
5	*RS-232* Terminal Block Connector (1 and 2)	Connect to the RS-232 connector on the A/V equipment or a PC or other Serial Controller
6	*IR OUT1* PIN	Connect to an IR emitter cable
	GND PIN	
	IR OUT2 PIN	
7	*GND* PIN	Connects (-) to the Ground
8	*+12VDC IN* PIN	Connects (+) to the connector for powering the unit

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1 See the examples in Figure 4

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and define the **RC-8IR** rear panel:
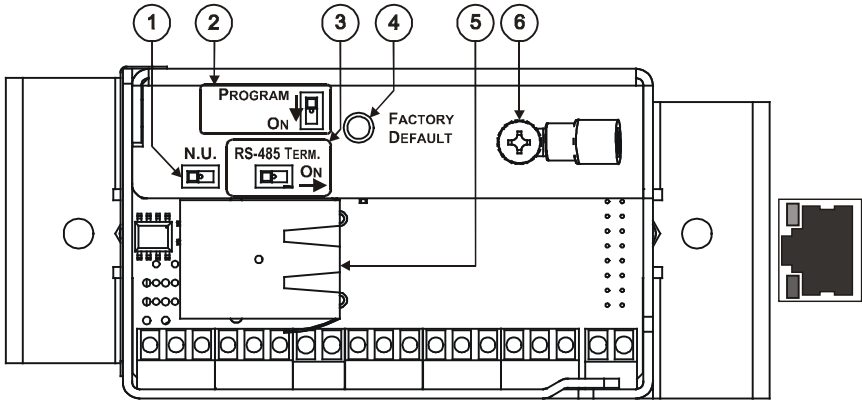
Figure 3: RC-8IR Rear Panel

Table 3: RC-8IR and Rear Panel Features

#	Feature	Function
1	*N.U* Switch	Not used
2	*PROGRAM* Switch	Switch to OFF for normal operation; Switch to ON for firmware upgrade
3	*RS-485 TERM.* Switch	Switch to ON for RS-485 line termination
4	*FACTORY DEFAULT* Button	Press to return to the factory default settings, including all the configured buttons and the network settings[1]
5	Ethernet Port	Connects to a PC or other controller through computer networking
6	Grounding Screw	Connect to grounding wire

5 Installing the RC-8IR Universal Room Controller

This section describes the installation of the **RC-8IR** and includes:

- Setting up the labels on the buttons, according to your specific requirements[2]
- Mounting the **RC-8IR** device to the wall
- Installing the button caps
- Mounting the faceplate
- Setting of the device

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1 Including the factory default IP number: 192.168.1.39 (an IP number is a device's numerical address as expressed in the format specified in the Internet Protocol)

2 It is recommended to place labels before mounting the faceplate

5.1 Setting the Labels and Button Caps

To install the labels and button caps:

1. Remove the required labels from the supplied button label sheet.

2. Hold the button cap so that it is oriented as shown in Figure 4 with the "wings" on the left and right sides, and insert the label inside the cap.

Figure 4: Button Cap Orientation

3. Repeat for all eight caps.

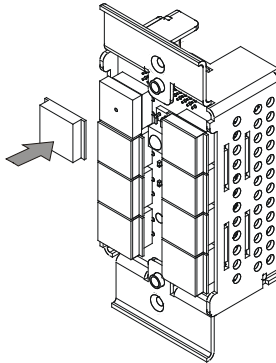4. Retaining the orientation, place the eight button caps on the buttons of the **RC-8IR** (see Figure 5).

Figure 5: Placing the Button Cap

5.2 Mounting the Device Housing

The device housing is mounted to the wall via the two housing mounting screws holes, as illustrated in Figure 6:
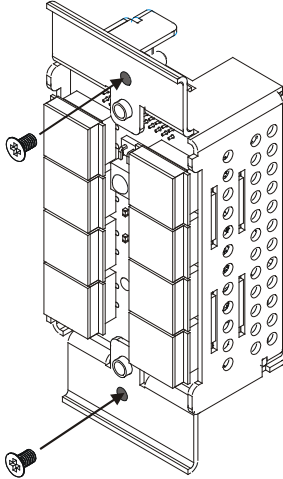

Figure 6: Mounting the Device Housing

5.3 Mounting the RC-8IR Faceplate

1. Place the faceplate on the **RC-8IR** so that the two screw mounting holes are aligned (see Figure 7).

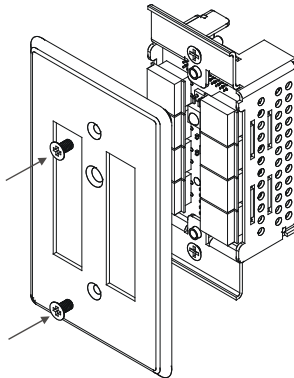2. Insert the two mounting screws and tighten with a screwdriver.

Figure 7: Mounting the Faceplate

6 Using the RC-8IR Universal Room Controller

Connecting the inputs and the display Configuration via the Windows®-based configuration software and/or the IR learner[1] is described in the RC Configuration guide. The cable installation process is not detailed in this user manual[2].

The universal room controller is very easy to use, as the example in Figure 8 and Table 4 defines[3]:
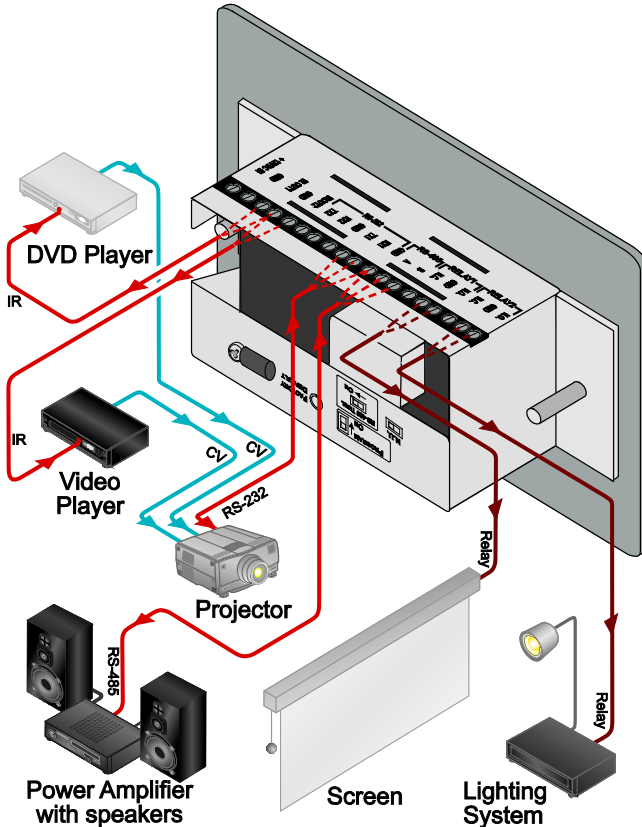
Figure 8: Example of a Typical RC-8IR Configuration

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1 By authorized Kramer technical personnel or by an external system integrator

2 Refer to the separate online "RC Configuration and Installation Guide" at http://www.kramerelectronics.com

3 Your RC-8IR was installed and configured to suit your specific requirements. This example describes how to setup one of an unlimited number of available setups for the system

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Table 4: Connection Scheme (for the example in [Figure 8]())

This connector:	Controls:
RELAY2	The lights
RELAY1	The screen
RS-485 Terminal Block Connector	A power amplifier (and speakers)
RS-232 (*TX1*, *RX1*) Terminal Block Connector	A projector[1]
IR OUT1 PIN[2]	A DVD player
IR OUT2 PIN[2]	A video player
Ethernet	The RC-8IR via a remote control PC
A laptop is connected to the projector	

[Figure 9]() shows the **RC-8IR** built into a podium that is located in a lecture auditorium. An overhead projector and screen, speakers, lights; and a cabinet with a VCR, a DVD and an amplifier inside, are all controlled via the **RC-8IR**. The presenter's laptop is located on the podium, next to where the **RC-8IR** is mounted. It is also controlled by the **RC-8IR** and is used for presentations, slide shows and so on.
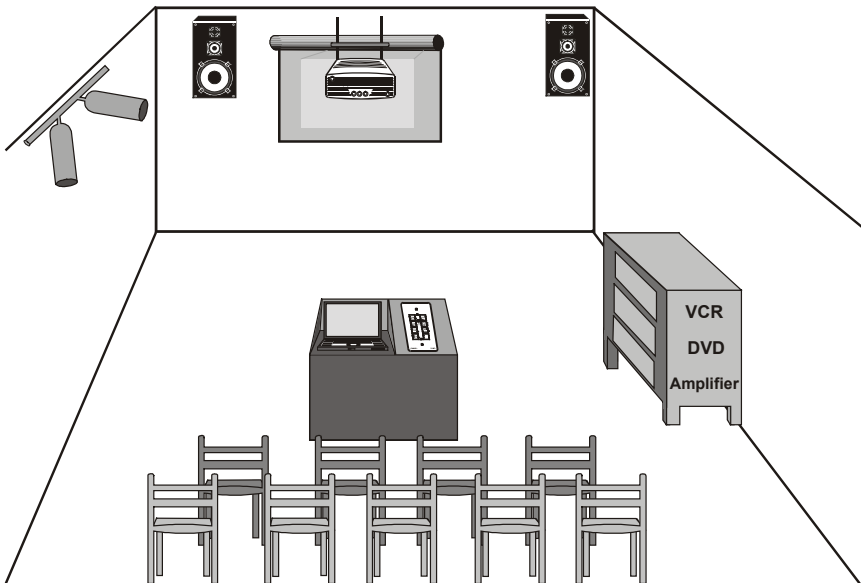

Figure 9: Example of a Typical RC-8IR Setup in the Lecture Auditorium

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1 The second RS-232 port can be used to control another A/V unit or an LCD

2 Connected via the IR emitter cable. IR OUT1 and IR OUT2 can each be connected to identical machines and still be controlled separately

6.1 Operating the RC-8IR

In the following example[1] that is illustrated in <u>Figure 10</u>, the **RC-8IR** is labeled with specific functions and each button is programmed[2] to perform several tasks[3] as defined in <u>Table 5</u>.

Each button may be assigned with up to 15 commands.
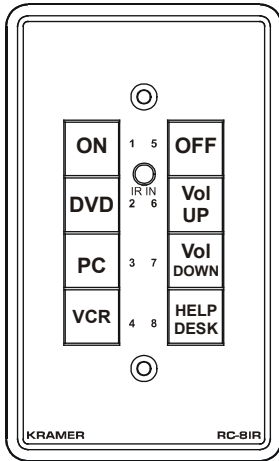
Table 5: The Commands Configuration

Figure 10: RC-8IR Labels Setup

The Label	The Macro Sequence
ON	• Power up the projector • Power up the power amplifier • Power up the DVD player • Power up the video player • Roll down the projector screen • Turn on the speakers • 1 minute delay [for the projector to heat up] • Turn lights off • The projector selects the PC input
OFF	• Turn lights on • Power down the projector • Power down the power amplifier • Stop the DVD player • Power down the DVD player • Stop the video player • Power down the video player • Roll up the projector screen • Turn off the speakers
DVD	• Stop the video player • The projector selects the DVD input • Play the DVD
VCR	• Stop the DVD • The projector selects the VCR input • Play the VCR
PC	• Stop the DVD • Stop the VCR • The projector selects a PC input
Vol UP	• Power amplifier volume up
Vol DOWN	• Power amplifier volume down
HELP DESK	• Call for technical assistance

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1 This is only one example among numerous possibilities, each button can be configured as required

2 By the system integrator

3 A macro sequence, including up to 15 commands per button, carried out one after the other
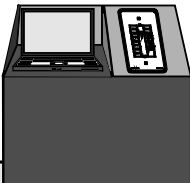
6.2 An Example of Operating the RC-8IR

Figure 11 shows an operating example:

Figure 11: RC-8IR Operation Example

6.3 Using the Macro Buttons

Pressing any button initiates a macro sequence[1], during which the button blinks (as programmed by the system integrator).

If during the macro sequence the button blinks faster than usual[2], this indicates that a malfunction has been detected[3] and the **RC-8IR** exits the macro sequence.

To solve the problem, summon technical help[4]

If you want to stop a macro sequence, press and hold that button for 5 seconds. The sequence will come to an end. You can resume operation by pressing any of the buttons[5]. The unit will carry out the macro sequence commands from the beginning.

6.4 Locking the Front Panel

The front panel can be locked to avoid unintended tampering with the buttons.

To lock the panel, press and hold buttons 4 and 8 simultaneously for about 2 seconds.

All the buttons blink momentarily and the panel is locked. When pressing a button at this stage, all the buttons blink twice.

To unlock the panel buttons, press the respective buttons once again. All the buttons blink momentarily and unlock. You can now use the buttons as usual.

6.5 Turning the Light of the Backlit Buttons On and Off

When the room is darkened, the buttons can be illuminated for convenience.

To **turn on** the backlight, press buttons 3 and 7 simultaneously.

To **turn off** the backlight, press the respective buttons once again.

6.6 Using the Internal Web Page

The internal Web page can be used to remotely operate the **RC-8IR** via the Ethernet.

To control your **RC-8IR** via the internal Web page, do the following:

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1 The macro sequence can be carried out instantly or can take a while, depending on the delay times included in the sequence

2 Six times per second, as compared with twice per second during normal operation

3 For example, a faulty DVD player

4 In this example, press the HELP DESK button

5 Including the button you kept pressed to stop the macro sequence

1. Type the unit's IP number[1] in the Address bar of your browser (or type any link defined by the system integrator).
   The **RC-8IR** front panel is displayed on your screen (see Figure 12).
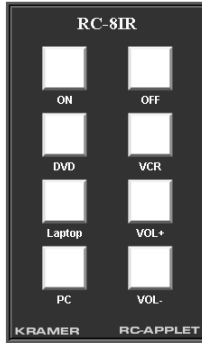
2. Press the on-screen buttons to control the unit.

Figure 12: Internal Web Page Front Panel

7 Flash Memory Upgrade

The RC device firmware is located in FLASH memory, which lets you upgrade to the latest Kramer firmware version in minutes!

The process involves:

- Downloading the upgrade package from the Internet (see section 7.1)
- Connecting the PC to the RS-232 port (see section 7.2)
- Upgrading the firmware (see section 7.3)
- Installing the Web Applet (see section 7.4)

7.1 Downloading from the Internet

You can download the up-to-date file[2] from the Internet. To do so:

1. Go to our Web site at http://www.Kramerelectronics.com and download the file: "*SetKFRXXX-xx.zip*" from the technical support section.

2. Extract the file "*SetKFRXXX-xx.zip*" package, which includes the KFR-Programmer application setup, the *.s19* firmware file and the Web Applet *dat* file, to a folder (for example, C:\Program Files\KFR Upgrade).

3. Install the KFR-Programmer Application.

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1 The default IP number is 192.168.1.39, and may be changed by the system integrator

2 File names are liable to change from time to time

7.2 Connecting the PC to the RS-232 Port

Before installing the latest Kramer Ethernet firmware version on the **RC-8IR**, do the following:

1. Connect the RS-232 port (COM 1) on the **RC-8IR** to a Null-modem adapter and connect the Null-modem adapter with a 9-wire flat cable to the RS-232 9-pin D-sub COM port on your PC.

2. Set the PROGRAM switch to ON.

3. Connect the power on your machine.

7.3 Upgrading Firmware

Follow these steps to upgrade the firmware:

1. Double-click the KFR-Programmer desktop icon.
   The KFR-Programmer window appears.
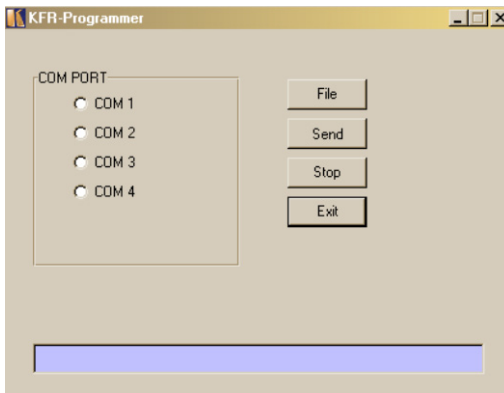
Figure 13: The KFR-Programmer Window

2. Select the required COM Port[1].

3. Click the File button to select the *.s19* firmware file included in the package.

4. Click the Send button to download the file. The Send button lights red.

5. Wait until downloading is completed and the red Send button turns off.

6. Disconnect the power on the **RC-8IR**.

7. Set the PROGRAM switch to OFF.

8. Connect the power on the **RC-8IR**.

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1 To which the RC device is connected on your PC

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7.4 Installing the Web Applet

Follow these steps to install the Web Applet[1]:

1. Connect **RC-8IR** to your PC through computer networking.

2. Start the RC Configuration Software and connect to the RC device (see the RC Configuration and Installation Guide[2]).

3. In the Device menu select Upgrade Applet option and browse to MC.dat file included in the package.

4. Wait until uploading is completed and the success message appears. Click OK.

8 Technical Specifications

Table 6 defines the technical specifications:

Table 6: Technical Specifications[3] of the RC-8IR Universal Room Controller

PORTS:	2 RS-232 on terminal block connectors 1 RS-485 on a terminal block connector 1 ETHERNET RJ-45 port
OUTPUTS:	2 relays on terminal block connectors (36V AC or DC, 2A, 60VAC maximum on non-inductive load) 2 IR emitters on terminal block connectors
POWER SOURCE:	12V DC, 155mA
DIMENSIONS:	11.4cm x 3.7cm x 6.9cm (4.49" x 1.45" x 2.72", W, D, H)
WEIGHT:	0.3kg (0.67lbs) approx
ACCESSORIES:	Kramer 3.5mm to IR Emitter Control Cable (C-A35/IRE-10), power supply, two extra M3x5 screws, Java based control software (internal), Windows®-based Kramer control software
OPTIONS:	Kramer 3.5mm to IR Emitter Control Cable (C-A35/IRE-10), 15 meter and 20 meter IR emitter extension cables

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1 This section is applicable only to firmware version 26.0 and higher and requires RC Configuration Software version 1.26.0.38 and higher

2 On our Web site at http://www.kramerelectronics.com

3 Specifications are subject to change without notice

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

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

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.

2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.

3. Damage, deterioration or malfunction resulting from:
   i)   Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v)   Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.

2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.

3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.

2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).

3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:

2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC* Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

⊠ Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.

⊠ Use the supplied DC power supply to feed power to the machine.

⊠ Please use recommended interconnection cables to connect the machine to other components.
   * FCC and CE approved using STP cable (for twisted pair products)

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found. We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

Caution