Kramer Electronics, Ltd.

USER MANUAL

Models:

RC-7LC, ***Media / Room Controller***

RC-7LCE, ***Media / 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-7LC / RC-7LCE** media / 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-7LC** or **RC-7LCE**
- This user manual[2]
- Power supply
- Control and configuration software

This user manual is written for the end user and is applicable once the unit is installed[3] and configured[4]. Refer to the separate online RC Configuration and Installation guide for details of how to install and configure the Universal Room (Media / Room) Controller[5].

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 Including the hardware installation, connecting the inputs and the display, and configuration via the Windows®-based software and/or the IR learner

4 By authorized Kramer technical personnel or by an external system integrator (refer to the separate online guide)

5 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

2 Getting Started

We recommend that you:

- Review the contents of this user manual
- Use Kramer high performance high resolution cables[1]

A special CONFIG cable[2] is required to configure and perform firmware upgrades to the machine

3 Overview

The **RC-7LC / RC-7LCE** is a highly versatile controller interface panel for the control of A/V equipment in any multimedia room, especially the control of a projector or other display device, via RS-232 and/or IR emitter cable. The **RC-7LC / RC-7LCE** is 12V DC fed. The **RC-7LC** is a one-gang wall plate. The **RC-7LCE** is two-gang wall plate intended for the European market.

In particular, the **RC-7LC / RC-7LCE** features:

- Two configurable backlit control buttons and three signal source buttons, each of which can be programmed[3] to carry out up to four macros with 15 commands each
- A 3.5mm jack on the front panel for configuration
- An IR learner on the front panel for the customized control of external sources, absorbing the IR commands from different remote transmitters
- A rotary volume control knob for convenient remote volume control of a power amplifier supporting 10K volume control

In addition, the **RC-7LC / RC-7LCE** includes:

- Two IR ports
- Two RS-232 serial ports for universal display
- An RS-485 serial port
- Four relays for the simplified and centralized control of room functions (such as lighting, closing blinds, projector lift, and so on)
- Control via the front panel buttons

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

2 C-A35M/D9F-6

3 To be configured by the system integrator only

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 the **RC-7LC / RC-7LCE** 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 this unit[1].

Warning – Disconnect power and unplug unit from wall before installing or removing device or servicing unit.

1 For example: model number AD2512C, part number 2535-000251

4 Your RC-7LC / RC-7LCE

This section defines the:

- Front panel of the **RC-7LC** (see section 4.1)
- Front panel of the **RC-7LCE** (see section 4.2)
- Side panel of the **RC-7LC** and **RC-7LCE** (see section 4.3)

4.1 Defining the RC-7LC Front Panel

Figure 1 and Table 2 define the **RC-7LC** front panel:

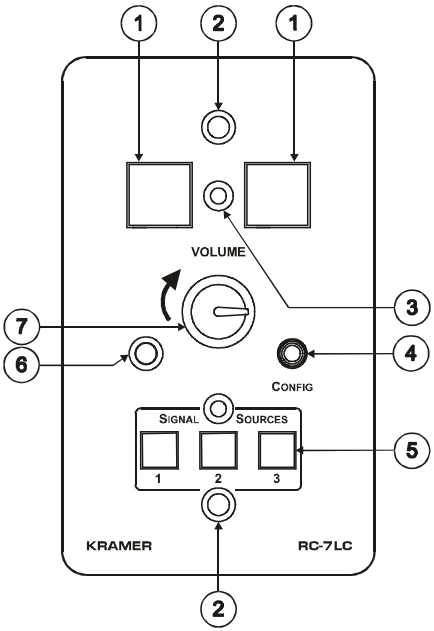


Figure 1: RC-7LC Front Panel

Table 1: RC-7LC Front Panel

#	Feature	Function
1	Configurable Control Buttons (2)	Macro Buttons for controlling the room and the A/V equipment
2	Mounting holes (2)	For fastening the controller in place
3	Faceplate Attachment Holes (2)	For attaching the faceplate to the controller[1]
4	*CONFIG* Port[2]	Used for Windows®-based configuration software (driver downloads, firmware updates and so on)
5	*SIGNAL SOURCES* Buttons	Select the input source (from 1 to 3)
6	IR IN Receiver	Accepts IR remote commands (for the IR-learner feature)[3]
7	*VOLUME* Control Knob	Rotate[4] to remotely adjust the volume on the power amplifier

1 These screws should not be removed during or after mounting

2 Via the front panel, without having to remove the RC-7LC from its mounting

3 Letting you configure the RC-7LC directly from the remote transmitter without the need for software

4 In a clockwise direction to increase the volume; in a counter-clockwise direction to decrease the volume

4.2 Defining the RC-7LCE Front Panel

Figure 2 and Table 2 define the **RC-7LCE** front panel:

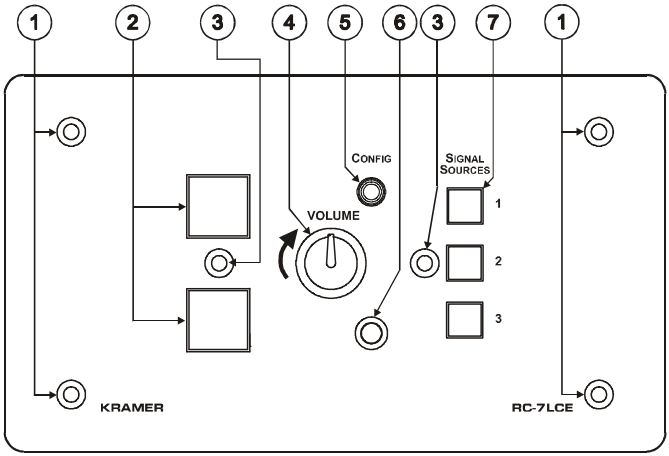


Figure 2: RC-7LCE Front Panel

Table 2: RC-7LCE Front Panel

#	Feature	Function
1	Mounting holes (4)	For fastening the controller in place
2	Configurable Control Buttons (2)	Macro Buttons for controlling the room and the A/V equipment
3	Faceplate Attachment Holes (2)	For attaching the faceplate to the controller[1]
4	VOLUME Control Knob	Rotate[2] to remotely adjust the volume on the power amplifier
5	*CONFIG* Port[3]	Used for Windows®-based configuration software (driver downloads, firmware updates and so on)
6	IR IN Receiver	Accepts IR remote commands (for the IR-learner feature)[4]
7	SIGNAL SOURCES Buttons	Select the input source (from 1 to 3)

1 These screws should not be removed during or after mounting

2 In a clockwise direction to increase the volume; in a counter-clockwise direction to decrease the volume

3 Via the front panel, without having to remove the RC-7LCE from its mounting

4 Letting you configure the RC-7LCE directly from the remote transmitter without the need for software

4.3 Defining the RC-7LC / RC-7LCE Side Panel

Figure 3 illustrates an enlarged view of the side panel of the **RC-7LC** and **RC-7LCE**:

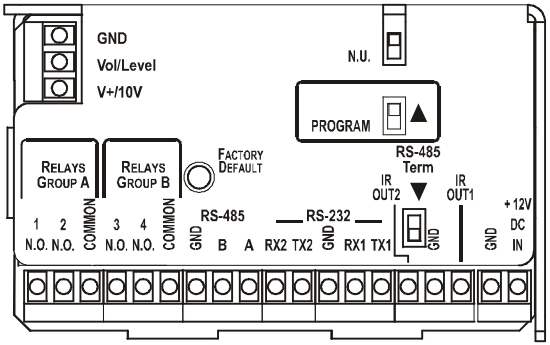


Figure 3: Side Panel of the RC-7LC and RC-7LCE (Enlarged View)

Figure 4 defines the side panel of the **RC-7LC** and **RC-7LCE**. For an explanation of how to install and configure, refer to the chapter entitled: Installation of the RC System in the online RC Configuration and Installation guide[1].

1 Download it from http://www.kramerelectronics.com

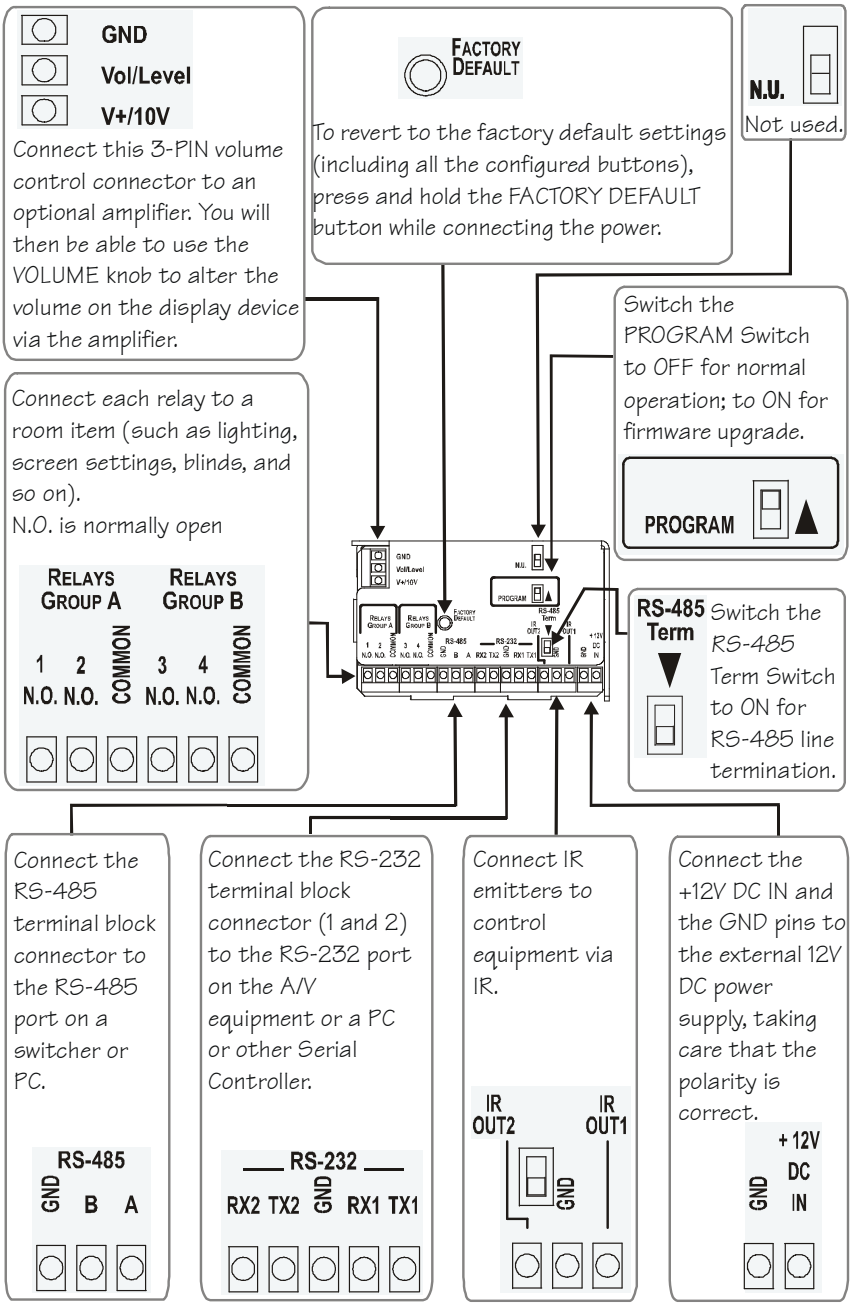


Figure 4: Side Panel of the RC-7LC and RC-7LCE

5 Using Your Media / Room Controller[1]

The example in Figure 5 shows a front view perspective of a typical **RC-7LCE** configuration. It connects to an amplifier letting you set the volume directly from the **RC-7LCE**, and to the projector via IR or RS-232:

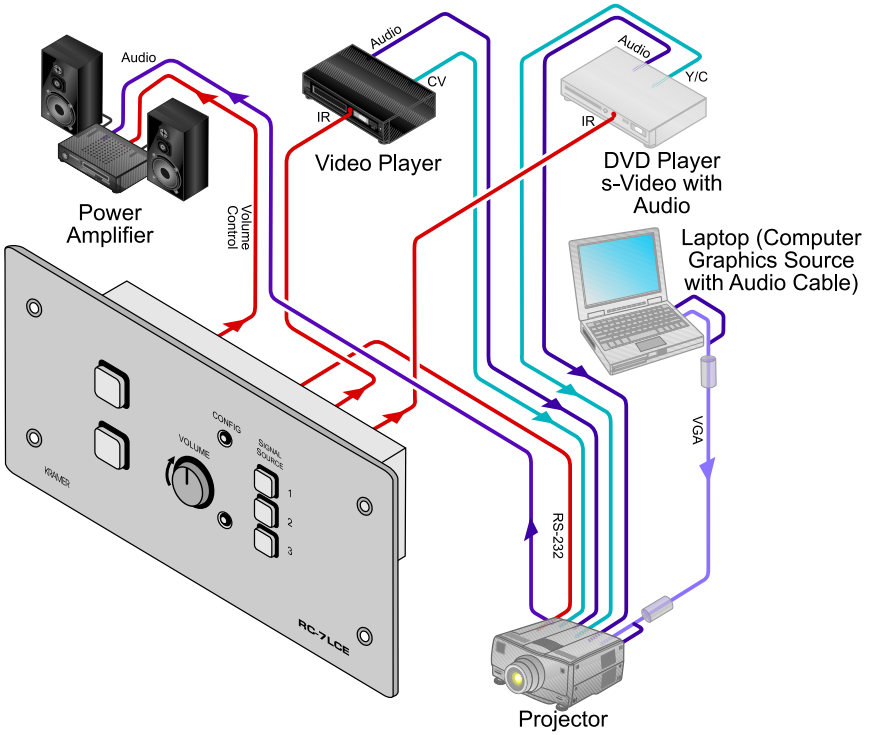


Figure 5: RC-7LCE (Front Perspective) Configuration

1 From this section on, all the information is relevant to both the RC-7LCE and the RC-7LC, unless noted otherwise

The example in Figure 6 shows a rear view perspective of a typical **RC-7LCE** configuration. It connects to the power amplifier directly, and to the projector via RS-232, as well as to two relay items (a screen and a lighting system). Each source—the PC, DVD and VCR—connects to the dedicated video and audio inputs of the projector, and the projector connects to the power amplifier:

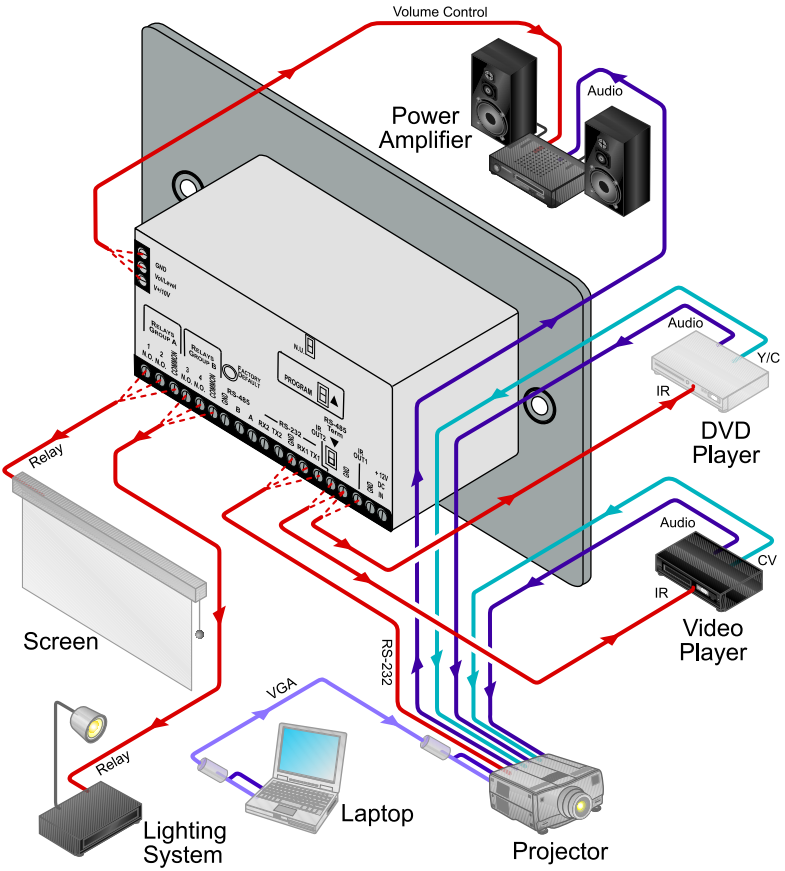


Figure 6: RC-7LCE (Rear Perspective) Configuration

Figure 7 shows the **RC-7LCE** built into a podium in an auditorium with an overhead projector and screen, speakers, lights, and a cabinet with a VCR, a DVD and an amplifier inside, all controlled via the **RC-7LCE**. The presenter's laptop is located on the podium, next to the **RC-7LCE**. It is also controlled by the **RC-7LCE** and is used for presentations and slide shows.

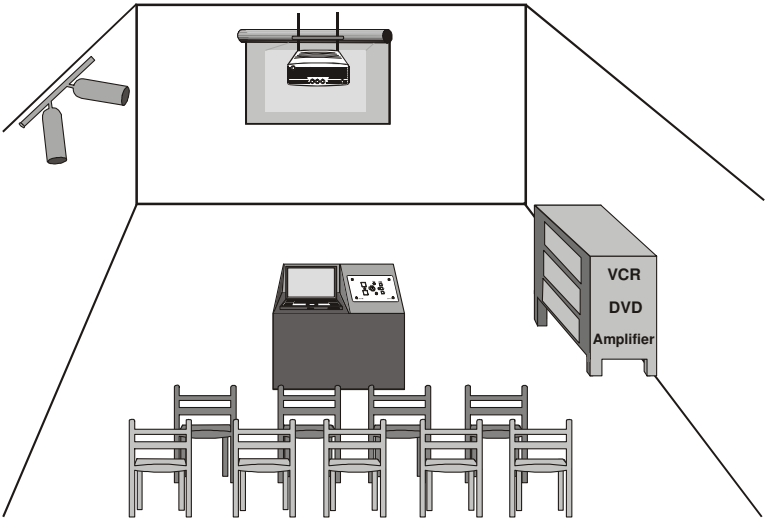
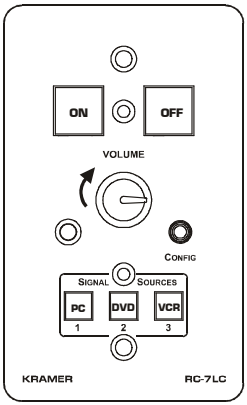


Figure 7: Example of a Typical Setup in the Lecture Auditorium

5.1 Operating the RC-7LC / RC-7LCE

In the example defined in Table 3, the buttons—ON, OFF, PC, DVD and VCR—are programmed by the system integrator to perform several tasks[1].

Table 3: The Commands Configuration



ON Button Macro Sequence

1. Power up the projector	**5.** Brief delay for the projector to heat up
2. Power up the DVD	**6.** Turn the lights off
3. Power up the VCR	**7.** The projector selects the PC input
4. Roll down the projector screen	

OFF Button Macro Sequence

1. Turn the lights on	**5.** Stop the VCR
2. Power down the projector	**6.** Power down the VCR
3. Stop the DVD	**7.** Roll up the projector screen
4. Power down the DVD	

DVD Button Macro Sequence

1. Stop the VCR	**3.** Play the DVD
2. The projector selects the DVD input	

VCR Button Macro Sequence

1. Stop the DVD	**3.** Play the VCR
2. The projector selects the VCR input	

PC Button Macro Sequence

1. Stop the DVD	**3.** The projector selects the PC input
2. Stop the VCR	

5.2 Using the Macro Buttons

Pressing any button initiates a macro sequence[2], during which the button blinks (as programmed by the system integrator).

If during the macro sequence the button blinks faster than usual[3], this indicates that a malfunction has been detected[4] and the **RC-7B / RC-7BE** exits the macro sequence.

To solve the problem, summon technical help

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.

1 A macro sequence, including up to 15 commands per button, carried out in sequence with one press of a button

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

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

4 For example, when pressing ON to power up the projector while the projector is still in the power down process

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

5.3 An Example of Operating the RC-7LC / RC-7LCE

Figure 8 shows an example of how to operate the **RC-7LC / RC-7LCE**:

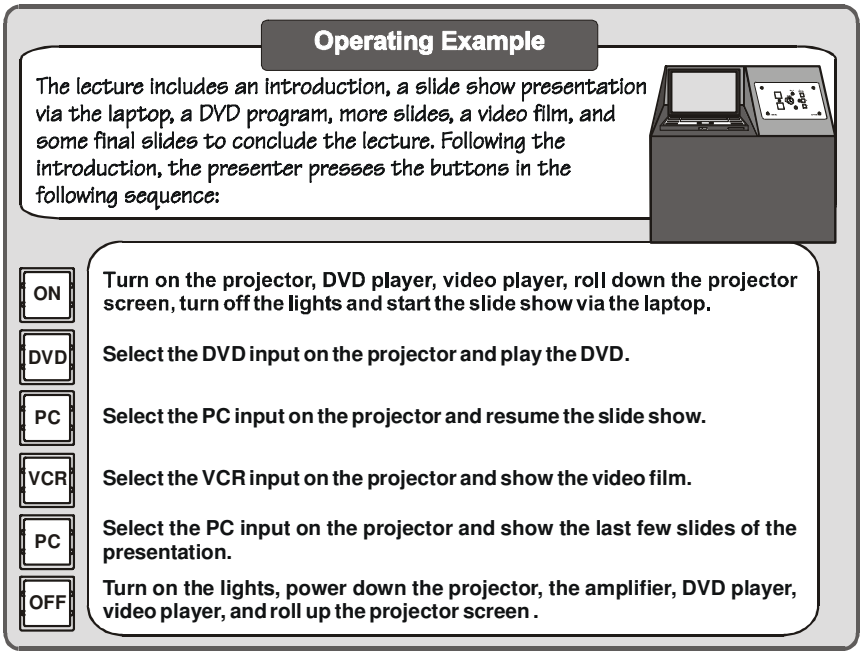


Figure 8: RC-7LC / RC-7LCE Operation Example

6 Flash Memory Upgrade

The **RC-7LC**[1] 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
- Connecting the PC to the RS-232 port
- Upgrading the firmware

1 This procedure applies also to the RC-7LCE

6.1 Downloading from the Internet

You can download the up-to-date file[1] 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.

6.2 Connecting the PC to the RS-232 Port

Before installing the latest Kramer Ethernet firmware version on the **RC-7LC**, do the following:

1. Connect the special CONFIG cable[2] to the CONFIG port on the **RC-7LC** device and then connect the special CONFIG cable via Null-modem adapter and 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.

6.3 Upgrading Firmware

Follow these steps to upgrade the firmware:

1. Double-click the KFR-Programmer desktop icon.
   The KFR-Programmer window appears.

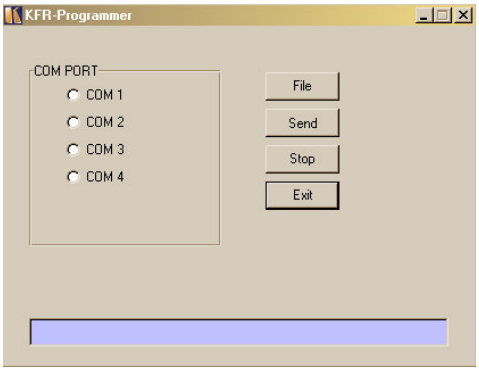


Figure 9: The KFR-Programmer Window

1 File names are liable to change from time to time

2 C-A35M/D9F-6

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 device.
7. Set the PROGRAM switch to OFF.
8. Connect the power on the RC device.

7 Technical Specifications

Table 4 defines the technical specifications:

Table 4: Technical Specifications[2] of the RC-7LC / RC-7LCE

PORTS:	2 bi-directional RS-232 on terminal block connectors, 1 RS-485 on a terminal block connector, Config. jack connector for RS-232 configuration and control
OUTPUTS:	4 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:	RC-7LC: 7.1cm x 4.4cm x 13.7cm (2.8" x 1.75" x 5.39", W, D, H)
	RC-7LCE: 15.1cm x 4.4cm x 8.6cm (5.94" x 1.75" x 3.39", W, D, H)
WEIGHT:	0.3kg (0.67lbs) approx
ACCESSORIES:	Power supply, Windows®-based Kramer control and configuration software
OPTIONS:	Dual IR emitter cable, single IR emitter cable, IR extension cable, CONFIG. cable[3]

1 To which the RC device is connected on your PC

2 Specifications are subject to change without notice

3 C-A35M/D9F-6

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.

Kramer Electronics, Ltd.
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P/N: 2900-000252 REV 2