

Vaux Electronics, Inc.

# MARC+ Remote Control System

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### Record for Future Reference:

Model Number: 1080

Serial Number:

Date Purchased:

Place of Purchase:

Attach your sales receipt to this manual.

Rev. 1.0

This equipment generates and uses radio frequency energy which may interfere with residential radio and television reception if not properly installed and used in accordance with instructions contained in this manual. Reasonable protection against such interference is ensured, although there is no guarantee this will not occur in a given installation. If interference is suspected, and verified by powering this equipment on and off, try to correct the interference by one or more of the following measures: re-orient the radio/television receiver's antenna; relocate the television or radio equipment with respect to the MARC+ Receiver; plug the equipment into separate electrical outlets. The MARC+ Remote Control System complies with all limits for Part 95 of the Federal Communications Commission (FCC) Rules and Regulations.

## **SAVE THESE INSTRUCTIONS**

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## Important Safety Information

As with any product, basic safety precautions should be observed during handling and use of this system.

- Before using your system, please follow and adhere to all warnings, safety and operating instructions located on the product and in this owner's manual.
- Do not expose the system to extreme temperatures, such as found near a hot radiator or stove.
- Do not use while you are in a bathtub, shower or pool. Immersion of the system in water could cause an electrical shock.
- Do not place lighted candles, cigarettes, cigars, etc. on the system.
- Never install or modify wiring during a lightning storm.
- Care should be taken so that objects do not fall onto, or liquids do not spill into, the system.
- Do not attempt to disassemble the enclosures. There are no customer serviceable components inside.
- If this system operates on batteries, adhere to the following precautions:
  - Any battery may leak electrolyte if mixed with a different battery type, if inserted incorrectly, or if all batteries are not replaced at the same time.
  - Any battery may leak electrolyte or explode if disposed of in fire or an attempt is made to charge a battery not intended to be recharged.
  - Discard leaky batteries immediately. Leaking batteries can cause skin burns or other personal injury.
  - Always dispose of batteries properly.
  - Remove batteries from your system if it will not be used for an extended period of time.

## Introduction

Thank you for selecting the MARC+ Remote Control System. It has been designed for the utmost in convenience and reliability. Read this owner's manual carefully to become familiar with the product and how it works. The manual explains in simple steps how to install, use, and care for your MARC+ System.

The MARC+ Remote Control System allows you to control virtually any device from any room in your house, even outside — without wiring your home!

With the MARC+ System, you can operate up to eight infrared-controlled Audio/Video components, such as TVs, VCRs, and stereos, with one remote control. Additionally, the MARC+ System allows you to turn on/off appliances and lights (and dim also), all at the touch of a button.

From the MARC+ Remote Control, you can operate up to 100 X-10® Powerhouse™-connected lights and appliances. The X-10 modules are easy to install — just plug them into standard power outlets.

The MARC+ System uses a small, hand-held Remote Control which broadcasts radio frequency (RF) signals to the MARC+ Receiver. Depending on the button you press, the MARC+ Receiver will take one of the following actions:

- Replay “learned” infrared signals to control your audio/video equipment,
- Send commands over the power lines to control your X-10 lighting and appliance devices, or
- Play a MACRO command to perform a sequence up to 10-steps.
- The “Auto-Source-Selection” feature make system operation easy.

As with any radio control system, the operating range is limited; this means that the MARC+ Remote Control can function only a certain distance away from the MARC+ Receiver. Under typical conditions, the MARC+ System will operate throughout an average home and immediately outside it.

## Parts Checklist

When unpacking your MARC+ System, make sure that you have the following parts:

1. Vaux RC-8 RF Remote Control
2. MARC+ Receiver
3. Standard Antenna (25" wire w/ phono plug)
4. Power Adapter (12VDC, 200 mA)

You may also need some of these optional parts for your installation:

- One X1 Powerline Interface (X-10 Interface module and cable)
  - Up to four EC-1 Infrared Emitter Cables, or EC-2 Dual Emitter Cables
  - Additional RC-8 RF Remote Controls for other rooms
  - ANT-3 Folded Dipole Antenna, or an APA-1 Antenna Preamp
- to increase RF reception range

## Installation

(NOTE: For the purpose of this installation the MARC+ Receiver will be referred to as the Receiver; the Vaux RC-8 RF Remote Control will be referred to as the Remote Control. An audio receiver or infrared remote control will be specifically referenced to as such.)

The rear panel of the MARC+ Receiver has the following connections:

1. 12 VDC Power Adapter (2.1 mm, center negative)
2. Antenna Connector (phono jack) — Standard wire antenna connects here, or, optionally, remotely-located antenna(s), such as the ANT-3 Folded Dipole, may be connected via RG-59 or RG-6 coaxial cable, and the appropriate adapter.
3. Four Infrared Emitter Cable Connectors (3.5 mm phone jack) (Xantech®-compatible, center positive)
4. X-10® Interface Module Connector ("telephone-type" modular jack)

The bottom of the MARC+ Receiver also has a recessed pushbutton RESET switch (Caution: pressing the Reset button will restore factory settings and erase all infrared codes).

1. Place the Receiver beside your audio/video components. For best RF reception, locate the Receiver as high as possible, and as far as practical from cables and metal cases. Avoid placement close to large-screen TVs, computers, or fluorescent fixtures — these devices generate RF noise which can reduce range.

2. Attach IR emitters over each audio/video component's infrared (IR) sensor window. The emitter affixes with a small section of peel-off, double-sided, removable adhesive tape. Plug the connector end of the emitter cable into one of the four rear-panel emitter jacks on the Receiver.

The Receiver has four connectors (3.5 mm phone jacks) on the back panel for attaching infrared emitter cables. Each single emitter can control one audio/video component. Optionally, you can use dual emitters to control up to 8 A/V devices.

(NOTE: You may also choose to use a "Room Blaster" instead of, or in addition to, the emitter cables. A Room Blaster can transmit the invisible infrared (IR) signals across a room to a wall of components; this provides more installation flexibility, but the signals can also get blocked by people or objects in the IR path.

3. **OPTIONAL: X-10® Lighting/Appliance Interface Module**

- a. Plug one end of the X-10 Interface Cable into the "telephone-type" jack on the back of the Receiver.
- b. Plug the other end of the X-10 Interface Cable into the "telephone-type" jack on the X-10 Interface Module.
- c. Plug the X-10 Interface Module into an unswitched standard electrical outlet. This allows the MARC+ System to send commands over the powerlines to control X-10 devices.

4. Plug the Antenna into the Receiver and straighten the wire up and away from cables and other metal.

5. Connect the Power Adapter to the Receiver and plug into an unswitched standard electrical outlet.

6. Install the Remote Control's batteries: The RC-8 Remote Control uses 3 "AAA" batteries to power it. Alkaline, Heavy-Duty Carbon, or rechargeable NiCad batteries may be used. These batteries will last up to 6 months under normal conditions. Be certain to observe polarity markings when installing batteries. Remember to always dispose of batteries at a recycling center; more information about battery use and disposal may be found on page 3 of this manual.

When changing the batteries, lay the RC-8 keyboard-down on a flat surface; protrusions on the case prevent the keys from being pressed. Remove the old batteries and replace with new batteries within one minute. This process will ensure that the user-selectable settings are not changed. If you want to restore the factory settings, remove the old batteries, press a key, and let the RC-8 sit for a minute or so before installing the new batteries — the red light will flash twice to indicate that factory settings have been restored.

## USING A VAUX RC-8 REMOTE CONTROL

The Vaux RC-8 Remote Control supports the IR commands for up to 8 A/V components, as well as up to 100 X-10-connected lights and appliances.

When the batteries are first installed, the RC-8 will use the "factory settings" for the programmable features it stores. Upon battery insertion, the red light flashes twice to indicate that the factory settings have been loaded. The user may at any time change these settings.

The factory settings are:

Current A/V Device: 1  
( Tuner )  
Default Light Group: 1  
( X-10 House Code A )  
Default Security ID Code: 1070  
Default Zone: 1 (not used by the MARC+)

Batteries should be changed when the low-battery indication is given, that is the red and green lights flashing simultaneously when a button is pressed. Although you may continue to operate the RC-8, operating range will be reduced and remaining battery life is short.

The RC-8 has a three-position slide switch which selects the operating mode; Audio/Video, Lights/App, or MACROs.

The Audio/Video mode is used to operate infrared-controlled components whose control codes have been learned by the MARC+ Controller.

The Lights/App mode is used to operate X-10 connected lights and appliances. The MACRO mode is used to invoke up to a 10-step key sequence by using the number pad (0-9), for ten different MACROs.

There are several special buttons on the RC-8: the SHIFT button, eight Device buttons (Tuner, CD, etc.), the Sec button, the Learn button, and the Zone button.

In the Audio/Video mode, the "keyboard" buttons correspond to the currently-selected "Device". These eight separate keyboards are also referred to as "pages" of infrared control codes. There are 30 programmable buttons which access the infrared codes for the currently-selected device. That is, each of the eight selectable Devices has a 30-button "keyboard" (or page) for a total of 240 infrared control codes.

Besides the standard buttons (FF, Play...) there are four general-purpose "function" buttons, F1 - F4, which may be used for less-frequently used infrared commands, for example, PIP, VCR tracking, surround modes, etc.

One way to change the Device you are controlling is to press the Shift key, followed by one of the Device buttons (e.g.: Shift-CD). This changes the Current Device which the RC-8 is ready to control, without transmitting any commands to the MARC+ Receiver.

A second way to change the Current Device is to simply press the desired Device button (e.g.: CD). This changes the Current Device which the RC-8 is ready to control, AND transmits a special "Source-Change" command to the MARC+ Receiver. Each of the Device buttons has an IR code associated with it, which is used to store the source-selection commands for your A/V receiver. You simply press CD: the A/V receiver automatically selects the CD input, and the RC-8 keyboard now accesses the CD's controls.

## Infrared Learning

1. Slide the mode switch to “Audio/Video”, and then Press and hold the Learn button on the Remote Control for 2 seconds until the green light on the Remote Control illuminates, then release. When the button is released, the yellow *Learn* light on the Receiver will illuminate. You are now in IR learning mode.
2. Select a Device: Press Shift-Device for the component you are about to teach to the MARC+ System (for example, Shift-Laser). You may change the Current Device at any time; you have eight separate “keyboards” (or IR pages) to program.
3. You are now ready to map all of the buttons from your existing infrared remote control(s) to the buttons on the MARC+ Remote Control.

You can learn as many buttons as you wish — one or all. If you want to change a button that already has been taught, just learn it again. It will replace the old command with the new infrared command. All of the commands are stored in the Receiver, which has a battery backup — you may unplug it without your codes being lost.

Press the button on the MARC+ Remote Control that you want to teach (for example, Ch Up); the green *Data* light on the Receiver will go on, and the yellow *Learn* light will go off.

4. Hold the infrared remote control up to the sensor window on the front of the MARC+ Receiver (approximately 2 to 4 inches away) and press and **HOLD DOWN** the button — that you want to learn — on your existing infrared remote control (for example, Ch Up) until the yellow *Learn* light on the Receiver illuminates, then release. Note: the green *Data* light on the Receiver will flash as the code is being learned.

**IMPORTANT:** You must **HOLD DOWN** the infrared remote control button, while you are learning the code, until the yellow Learn light on the Receiver illuminates. This may take a second depending on the type of A/V device.

If there has been an error while learning, the red *Error* light on the Receiver will blink; repeat steps 2 through 4 until all of the primary

device buttons have been learned. You may change the Current Device setting at any time; you have eight separate "keyboards" to program.

Note: If you wish to have a global button (e.g. Volume, Mute, Power...) which is always available regardless of the Device page you are in, simply program the same code in all eight device pages.

5. To program the eight special "Source-Change" codes, press a Device button (e.g.: Laser) when the Receiver's yellow *Learn* light is on. Then program this location with the appropriate source-select code for the A/V receiver. Repeat for the other Device buttons.

6. To exit IR Learning mode, press and hold down the Remote Control's Learn button for approximately 2 seconds until the Remote Control's Green light goes on, and then release the button. Note: You may exit Learn mode only when the Receiver's yellow *Learn* light is on. When completed, the green *Data* light flashes and the yellow *Learn* light will go off.

## MACRO Programming

Multiple command MACRO support allows you to define one-button sequences, for example, adjust room lighting, lower the projection screen, power-up the laserdisc, and play. There are Ten 10-step MACROs available using any combination of audio/video IR command, X-10 for light control, even time delays (using X-10 commands). MACROs are stored in the Controller, which has battery back-up.

There are 10 different MACRO buttons available using the number keypad (0-9).

- a. Slide the Mode switch to the *Macro* position.
- b. Press the Learn button (do not hold down — if held down, system will go into Infrared Learning Mode, not MACRO Learning).
- c. Press and hold down the MACRO button that you would like to program (for example, 1) for 2 seconds until the Green light on the RC-8 is on, then release. The Controller's Learn and Data lights will illuminate.
- d. In the desired operational sequence, slowly press the sequence of buttons, one right after the other waiting a second between button presses for the data transmission to complete (lights on the RC-8 will flash during transmission). The Data light on the Controller flashes off briefly as the button-press is added to the MACRO's sequence. You can program up to 10 different audio/video IR and/or X-10 steps per MACRO button.

Example:

- slide to Macros, press Learn, press/hold 2, release
- slide to Lts, press 2, 3, On (B3 On) (1 step)
- press VolDn, VolDn, VolDn (dim about 50%) (3 steps)
- slide to A/V, press Laser, press Play (2 steps)
- slide to Macros, press any number key to exit

MACRO Tip: if you wish to insert short delays between commands, enter an unused X-10 function (e.g. H1 OFF, if H1 is not used in your house) to obtain approximately one second of delay per X-10 command.

MACRO Tip: a "System On" Macro is handy, but many A/V devices have a toggling power command and can lead to synchronization problems. Use an X-10 Appliance power strip to power these components; in the Macro, first turn the module Off, then On (devices now in standby), followed by all of the component IR power commands.

## Default Lighting Group (X-10 House Code)

The MARC+ System allows access to 100 lights and appliances using a 2-digit operation (00-99), but also provides a shortcut 1-digit operation to control up to 9 X-10 modules that are used most frequently; these nine modules must have the same House Code and will use Unit Codes 1 to 9. The House Code used in 1-digit operation is stored in the RC-8 Remote Control.

When batteries are first inserted into the RC-8, it is initially programmed with a House Code Factory Setting of "A". For initial 1-digit X-10 Operation, a House Code of "A" will automatically be used and you do not have to specify a House Code.

To set a new default House Code for 1-digit operation:

- a. Press the Learn button, then press the Shift button, then press and hold down the Zone button until the Green light on the Remote Control is on, then release.
- b. Press a digit (0 through 9), corresponding to the desired default House Code. This will be saved until it is changed or reset.

<u>RC-8 Digit Pressed</u>	<u>X-10 House Code</u>
1	A (Factory Setting)
2	B
3	C
4	D
5	E
6	F
7	G
8	H
9	I
0	J

## Security ID Code

The MARC+ System can be set to a unique identifying number, not unlike dialing up a number on a garage door opener. This allows systems to exist in adjacent houses, or multiple Vaux Systems to be installed within one house. There are 10,000 code combinations possible. Only power one Receiver at a time when setting SecIDs.

Before you begin, make sure the MARC+ Receiver is plugged into a standard electrical outlet and has power. Also, make sure that you are within transmitting distance.

- a. Press and hold down the *Sec* button on the RC-8 Remote Control for two seconds until the Remote Control's green light is on, then release.
- b. Press 4 buttons corresponding to the 4-digit security code desired (0000 through 9999).
- c. For verification, press the new 4-digit security code (0000 through 9999) again. Once verified, the command to change the security ID code will now be transmitted to the MARC+ Receiver and the green *Data* light on the Receiver will flash.

If an incorrect button is pressed during the second code entry, the red *Error* light on the Remote Control will flash to indicate that the security code was invalid; please start all over again. No command will be sent to the Receiver.

If there is an error during transmission and the Receiver does not receive a valid security id code change, the red *Error* light on the Receiver will flash. Or, possibly, if you are too close to the Receiver, no light will flash. At this point, the Remote Control's security id code has been changed, but not the Receiver's. The Remote Control will need to be changed to match the Receiver (start from step a. and enter the previous setting — the command will be ignored by the Receiver) or reset to the factory settings.

**IMPORTANT:** If for some reason, either the Remote Control's or the Receiver's security id code changes, but not the other, reset to the factory settings of 1070; see page 23.

## Operation

### Audio/Video Operation

1. Slide the Mode switch to the Audio/Video position.
2. Select the Device you wish to control by either:
  - pressing a Device button (e.g.: Cab/Sat) to change the Current Device AND use Auto-Source-Selection, or
  - pressing Shift-Device (e.g.: Shift-Cab/Sat) to change the Current Device without changing any source selection.
3. Press the button for desired operation (e.g., Vol Up).

Note: You may control system power individually over each component, or you may program MACROs to turn your entire system on and off.

### MACRO Operation

1. Slide the Mode switch to the Macro position.
2. Press a digit key (0-9) corresponding to the desired Macro.

## Lights/Appliances (X-10) Operation

Controlling your lights and appliances can be performed by using either the 1-digit or 2-digit operation. With the 2-digit X-10 operation, you can control up to 100 lights and appliances. The 1-digit operation is used to reduce the number of keystrokes for the lights/appliances control for up to 9 X-10 modules that are used most frequently and have the same House Code.

1. **2-digit operation:**

- a. Slide the Mode switch to the Lts/App positions
- b. Press a digit (0 through 9), corresponding to the desired House Code.

<u>RC-8 Digit pressed</u>	<u>X-10 House Code</u>
1	A
2	B
3	C
4	D
5	E
6	F
7	G
8	H
9	I
0	J

- c. Press a digit (0 through 9), corresponding to the desired X-10 Unit Code.

<u>RC-8 Digit pressed</u>	<u>X-10 Unit Code</u>
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	10

- d. Press the On or Off button to control the X-10® Module.

(NOTE: In order to dim or brighten a light, the light must first be turned on and then dimmed/brightened. This an X-10-

defined operation. See Steps 3 and 4.)

**Example of 2-digit X-10® Operation:**

For example, either a lamp module or an appliance module set to a house code of "D" and a unit number of "5", would be addressed by pressing the two-digit code, 4 5. An X-10 module set to a house code of "F" and a unit number of "9", would be addressed by pressing the two-digit code, 6 9.

**2. 1-digit X-10 Operation (Default House Code Used):**

The 1-digit operation can be used in addition to the 2-digit operation; it is used to reduce the number of keystrokes for the lights/appliances control for up to 9 X-10 modules that are used most frequently and have the same House Code.

The MARC+ System is initially programmed with a House Code Factory Setting of "A". For initial 1-digit X-10® Operation, a House Code of "A" will automatically be used and you do not have to specify a House Code.

If you wish to use a different House Code, other than "A", you must change your Default House Code — See previous section.

**1. 1-digit operation:**

- a. Slide the Mode switch to the *Ls/App* positions
- b. Press a digit (0 through 9), corresponding to the desired X-10 Unit Code.

<u>RC-8 Digit pressed</u>	<u>X-10 Unit Code</u>
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	All lights on/All units

off

Use the zone mapping provided on the rear label of your

MARC+ Remote Control for the 1-digit X-10® operation. This gives you a quick reference guide.

Zone "0" commands all modules, on the default House Code, to respond to the X-10 "All Lights On" and "All Units Off" commands.

c. Press the On or Off button to control the X-10 Module.

(NOTE: In order to dim or brighten a light, the light must be turned on, then dimmed, then brightened. This an X-10 defined operation. See steps 3 and 4.)

#### Example

With the 1-digit operation method, the factory-setting house code is set to "A". For example, either an X-10 module placed in the Living Room should be set to a house code of "A" and a unit number of "1". A module placed in the Dining Room should be set to a house code of "A" and a unit number of "2", etc.

If you hear a noise at night, 0-On turns on lights in the whole house.

### 3. Dimming/Brightening Lamp Modules:

In order to dim a light, the light will be first be turned on and then dimmed. Only the last module which was turned on is affected. Actually, the last light turned Off will also dim (from full bright), but will not brighten from full off. This an X-10 defined operation.

Note: Macros can be used to preset modules On and fully dimmed. They can then be brightened from this pseudo-off point.

Note: Appliance modules do not respond to the Dim/Bright commands, since they use relay switching.

a. Slide the Mode switch to the Ls/App positions

b. Press Chan Up/Down, or the Vol Up/Down buttons, and hold until the lamp is dimmed/brightened to the desired level.

Note: The Dim/Bright operation does not apply to the "All Lights" zone; this is an X-10-defined operation.

## **Maintenance**

The MARC+ System is designed to be maintenance-free, but it does contain sensitive electronic parts. Treat it with care to assure best performance.

### **Avoid Rough Treatment**

Avoid dropping the MARC+ Remote Control and Receiver. Use the original packaging (or equivalent) for protection, if you must ship the system.

### **Cleaning**

The hard plastic cases of the MARC+ System have a durable finish that should retain its luster for many years. Clean exposed parts with a soft, slightly damp soft cloth. Never use detergents, excess water, treated cloths, harsh cleaning agents or sprays.

## **Service**

The Federal Communications Commission (FCC) requires this product be serviced only by the manufacturer or its authorized service agents. For instructions on how to obtain service, refer to the warranty included in this manual or call the Vaux Electronics Service Department at (602) 813-8577.

Attach your sales receipt to this manual for future reference and write down the date this product was purchased on page 1 of this manual. This information will be valuable if service should be required during the warranty period.

According to some State laws, in the event service should be required, you may need both Model and Serial Numbers. Please record your Serial Number on page 1 of this manual. The MARC+ System Serial Number can be found on the rear panel of the Receiver.

## Limited Warranty

### What does your warranty cover?

- Any defect in material or workmanship.

### For how long after the original purchase?

- One year.

### What will we do?

- If your MARC+ System is defective and returned within 30 days of the date it was purchased, we will replace it at no charge to you.
- If your MARC+ System is returned after 30 days, but within the one year of the date of purchase, we will repair it, or, at our option, replace it at no charge to you. If we repair your MARC+ System, we may use new or reconditioned replacement parts. If we choose to replace your MARC+ System, we may replace it with a new or reconditioned unit of the same or similar design.
- The repair or replacement unit will be warranted for either (a) 90 days or (b) the remainder of the original one year warranty period, whichever is longer.

### How do you make a warranty claim?

- To get warranty service for your MARC+ System, you must provide proof of purchase.
- Within 30 days of the date it was purchased, return your MARC+ System to your place of purchase for immediate replacement.
- After 30 days of the date it was purchased, call the Vaux Service Department at (602) 813-8577 and ship the MARC+ System standard UPS or equivalent to Vaux Electronics. Provide necessary shipping insurance.
- Include in the package a copy of the sales receipt or other evidence of date of original purchase. Also print your name, address, phone number and a description of the defect.
- Properly pack your unit, include any cables, etc., which were originally provided with the product. Please use the original carton and packing materials.
- Pay any charges billed to you by the Vaux Service Department for service not covered by the warranty.
- A new or reconditioned unit will be shipped to you prepaid freight.

**What does your warranty not cover?**

- This warranty does not cover incompatibility with:
  - Non-remote control, wired-remote control, RF-remote control, or ultrasonic-remote control-operated components.
  - Pre-programmed universal remote controls.
  - Products that operate over 100kHz (e.g., Bang & Olufsen, Pioneer ISC).
  - Products that use unique or multi-frequency infrared signals (e.g., RCA XL-100).
- This warranty does not cover defects resulting from accidents, damage while in transit to the Vaux Service Department, alterations, unauthorized repair, failure to follow instructions, neglect, misuse (including broken antenna), fire, flood, or acts of God.
- Customer instruction. Your Owner's Manual provides information regarding operating instructions.
- Installation and set-up service adjustments.
- Batteries.
- Products which have been modified or incorporated into other products.
- Product purchased or serviced outside the continental USA.

If your product is not covered by our warranty, call the Vaux Service Department at (602) 813-8577 for advice as to whether we will repair your MARC+ System or other repair information, including charges. We, at our option, may replace, rather than repair, your MARC+ System with a new or reconditioned one of the same or similar design. The repair or replacement will be warranted for 90 days.

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

**Limitations:**

Implied warranties, including those of fitness for a particular purpose and merchantability (an unwritten warranty that the product is fit for ordinary use), are limited to one year from date of purchase. We will not pay for loss of time, inconvenience, loss of your MARC+ System, or property damage caused by your MARC+ System or its failure to work, or any other incidental or consequential damages.

## Questions & Answers

How do I find the IR sensor on my audio/video components?

Place each emitter on front of the audio/video equipment's infrared (IR) sensor window. The emitters have double-sided tape to allow you to fasten them. If your audio/video component has an infrared (IR) remote control, it will have an IR sensor window, which is typically located on the front panel. It is usually a small dark or red window and may be labelled "IR Sensor." If you cannot locate the IR sensor window, refer to your audio/video equipment owner's manual. If your owner's manual does not indicate the location, you can determine the location by repeatedly covering small areas of your audio/video equipment's front panel with a piece of cardboard and using your remote control. Hold the cardboard close to your component and hold your remote control approximately one foot or more away from (and pointed towards) your component. Remember, infrared signals are invisible beams of light; a solid object in the path of the IR signal will prevent your component from seeing the remote control signals. Once your audio/video equipment is not responding to the commands from your remote control, you know that you have covered — and found — the IR sensor window.

How can I maximize the operating range?

Radio system operating range is dependent upon many factors. The MARC+ Remote Control sends radio signals throughout the house to be picked up by the MARC+ Receiver. In order to obtain maximum range, the location of the Receiver is important. In some cases, installing the Receiver on the second floor will provide greater range than a ground floor installation. Reception is also affected by atmospheric conditions, and by metal construction which acts to shield radio signals (for example, aluminum siding, insulation foil backing, and heating ducts). Of course, you can't easily relocate your audio/video components to suit MARC+ reception, but you can keep in mind that a higher installation site for your MARC+ Receiver would be desirable. Also, try to keep the Receiver's Antenna Wire in a vertical position and away from other cables and metal cabinets where possible. Alternate antenna systems may help also.

How do I reset my remote control and receiver back to factory settings and clear the memory?

You can achieve this by removing the batteries from the Remote Control for about a minute; this resets the Remote Control's Security ID Code to "1070", and the factory setting X-10® House Code to "A".

For the Receiver, find the small hole in the bottom of the case and press the recessed pushbutton with a pointed instrument, such as a pen, holding for approximately one second until the green *Data* light flashes; this will erase all of the infrared and Macro codes, as well as reset the Security ID Code to "1070".

## Troubleshooting Guide

### I press a button and nothing happens except:

1.) nothing — no lights on the Remote Control or the Receiver flash.

Dead batteries — install new batteries in the Remote Control.

2.) the red Error light on the Remote Control flashes and no lights on the Receiver flash.

You have pressed an invalid button or sequence of buttons.

3.) the green light on the Remote Control flashes, but no lights on the Receiver flash.

The Remote Control has sent a valid command, but the Receiver has not sensed it; the cause may be one of the following:

a.) You may be located too close to the Receiver (less than 2–3 feet may overload the Receiver.)

b.) Your Security Identification Codes in your Remote Control and Receiver may not match. Reset the Remote Control to factory settings by removing its battery for approximately a minute. Reset the Receiver to factory settings by pressing the button on the bottom of the Receiver for one second until the green *Data* light flashes; this will also clear out the infrared memory in preparation for a new learning session.

c.) You may be having interference or other transmission problems; for example, you may be located in an office that has metal studs, or

d.) You may be located out of range of the Receiver.

4.) the green light on the Remote Control flashes and the red Error light on the Receiver flashes.

The Remote Control has sent a valid command and the Receiver has sensed the command, but the Receiver considers it an invalid command. Your problem may be one of the following:

a.) If you are sending X-10 commands for lights and appliances, then you may not have the X-10 Interface Module connected (or its outlet switched off), or

b.) If you are sending X-10 commands, you may have a defective X-10 Interface Cable, or

c.) If you are sending infrared commands, you may have not programmed the Receiver with an infrared code for that device's button.

5.) the green Data light and the red Error light on the Receiver flash together.

The Security ID Codes do not match.

6.) the green light on the Remote Control flashes and the green Data light on the Receiver flashes, but still no response.

The Remote Control has sent a valid command; the Receiver has sensed the command and also has qualified it as a valid command. The Receiver is also acting on the command — either sending signals out the infrared emitter connectors or out to the X-10 Powerline Interface Module.

If you have pressed an audio/video command, your problem may be one of the following:

a.) You may have the emitter cable placed in the wrong area on your A/V equipment. You can verify that the codes are being emitted by looking on the back of the MARC+ Receiver and seeing the green diagnostic light flash. Check the section in your Owner's Manual on "How do I locate the A/V equipment's infrared sensor."

b.) You may have not programmed the infrared codes into the Receiver properly. Try learning the infrared code again, making sure the light inside the MARC+ Receiver's window is flashing brightly; you may need to hold the infrared remote control closer or further away depending on the strength of the signal.

c.) You may have a defective emitter cable (or connector). You can verify this with a camcorder if one is available to you. While infrared light is invisible to the eye, you are able to *see* the infrared flashes at the emitter end (it's brightest on the front of the emitter) through the viewfinder of a camcorder. If you have more than one emitter cable, you may be able to isolate the defective one by switching cables.

If you have pressed an X-10® command, your problem may be one of the following:

a.) The X-10 module is not set to the correct House and Unit codes — valid module settings are listed in X-10 Operation section of your Owner's Manual.

b.) You are expecting some action which is not allowed by X-10®.

Example 1: the Dim/Bright operation applies only to the last module accessed;

Example 2: the Dim/Bright operation does not apply to the All Lights zone;

Example 3: if you have dimmed a light completely down, you cannot command it ON and expect full brightness (it thinks it is already on at a low level; you must either brighten it, or first turn it OFF, and then ON). These are X-10-defined operations.

c.) Even though the Receiver checks for the presence of the X-10 Interface Module, you may still have a defective cable. The Interface Module has a red light which is normally on — if your interface cable is good, this red light should flash off briefly as X-10 signals are being sent to the power line.

d.) You may not be able to send an X-10 command to some outlets in your house — if you can control an X-10 module in the same room as your MARC+ System, but the same module does not respond when placed in its final destination, the cause may be:

Example 1: you have placed the module in an outlet which is switched off — turn it on;

Example 2: you have a very large house and the module is located too far from the X-10 Powerline Interface Module which is sending the commands — there are X-10 signal boosters available from some suppliers;

Example 3: you have discovered that X-10 signals do not always get over to the other *half* of your powerline — if you can access the module when a 220 Volt appliance (such as a dryer or stove) is turned on but not when it's turned off, this is an X-10 subtlety — there are coupler devices available from some suppliers.

If none of the above suggestions help your situation, a Vaux Customer Service Representative will be happy to provide you with technical assistance. Please call (602) 813-8577 between 8:00 am and 4:00 pm MST, Monday through Friday.