

Operation Manual
for
RC-8-AVM
of
Audio/Video Selector
Switches



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Read all instructions before connecting or operating the RC-8-AVM. Pay particular attention to the safety information. Keep this manual so you can refer to these safety instructions.

WARNING: There are no user serviceable parts inside. Refer all servicing to qualified service personnel.

WARNING: To reduce risk of fire or electric shock, do not expose the RC-8-AVM to extreme heat, extreme cold, moisture or water. Do not allow foreign objects to get into the enclosure. If the unit is exposed to moisture, or a foreign object gets into the enclosure, immediately disconnect the power cord from the wall. Take the unit to a qualified service person for inspection and the necessary repairs.

Clean the A/V Switcher only with a dry cloth or a vacuum cleaner. Do not use water, solvents, or any other liquid to clean the A/V Switcher.

Place the A/V Switcher on a fixed, level surface strong enough to support its weight. Keep the A/V Switcher away from heat sources such as radiators, heat registers, stoves, or any other appliance that produces heat.

The A/V Switcher may be operated from either 95 volt AC to 250 volt AC power sources. It may also be operated from either 50 Hz or 60 Hz line frequencies.

Connect the A/V Switcher to the power outlet only with the supplied 3-prong grounded power supply cord or an exact equivalent. The cable should be connected to a properly grounded 3-conductor wall outlet. Do not modify the supplied cable in any way. Extension cords must be rated for adequate current.

Do not route the power cord where it can be crushed, pinched, bent at severe angles, exposed to heat, or damaged in any way. If the cord shows any sign of wear or damage, immediately stop using it and obtain a proper replacement from a qualified service agency or from the R.F. Systems service department.

If the A/V Switcher shows signs of improper operation, or if it has been dropped or damaged in any way, immediately disconnect the power cord from the power outlet. Take the A/V Matrix to a qualified service technician or send it directly to R.F. Systems for inspection and the necessary repairs.



Safety Instructions

1 Read Instructions - All the safety and operating instructions should be read before the appliance is operated.

2 Retain Instructions - The safety and operating instructions should be retained for future reference.

3 Heed Warnings - All warnings on the appliance and in the operating instructions should be adhered to.

4 Follow Instructions - All operating and other instructions should be followed.

5 Water and Moisture - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

6 Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer.

6A An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7 Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.

8 Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface, that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.



CAUTION

RISK OF ELECTRICAL SHOCK
DO NOT OPEN



CAUTION: DO NOT REMOVE COVER. NO USER SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



- 9 Heat** - The appliance should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.
- 10 Power Sources** - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
- 11 Power-Cord Protection** - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- 12 Cleaning** - The appliance should be cleaned only as recommended by the manufacturer.
- 13 Nonuse Periods** - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
- 14 Object and Liquid Entry** - Care should be taken so that objects do not fall into and liquids are not spilled into the inside of the appliance.
- 15 Damage Requiring Service** - The appliance should be serviced by qualified service personnel when:
- A. The power-supply cord or the plug has been damaged.
 - B. Objects have fallen, or liquid has been spilled into the appliance.
 - C. The appliance has been exposed to rain.
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance.
 - E. The appliance has been dropped, or the cabinet is damaged.
- 16 Servicing** - The user should not attempt to service the appliance beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.
- 17 Power Lines** - An outdoor antenna should be located away from power lines.
- 18 Grounding or Polarization** - The precautions that should be taken so that the grounding or polarization is not defeated.



Be careful when unpacking the A/V Switcher and the Keypads. This electronic package is susceptible to dropping or holding heavy objects on top of it. Save the original package and all enclosed packing material in case the unit needs to be returned. Damage due to shipping in cartons other than the original package are not covered under the warranty.

Make sure you fill out and return the warranty card. This document along with the sales receipt will give you the purchase date in case the unit needs to be returned for repair under warranty service.

Any modifications or improper use of the A/V Switcher or the Keypad will void the warranty. Please read all information and instructions concerning this system before installing.

For any questions or concerns about the A/V Switcher and/or the Keypads, please call R.F. Systems, Inc. We are happy to answer any questions you may have or any problems you may be experiencing. If you are unsure of any aspects of your installation please contact one of our technicians before you start your installation. Here at R.F. Systems, Inc. we will assist you in any way we can.

Please read this manual carefully and completely before operating the A/V Switcher. It gives details in operation, configurations, descriptions, adjustments, trouble shooting, problems, performance, and convenience of use.

Setting Baud Rate

The RS-232 baud rate is set by an internal bank of switches. To access these, remove the 8 screws from the top cover and lift off the cover. The switch bank is located in the vicinity of the RS-232 connector. **Factory default is 9600 baud.**

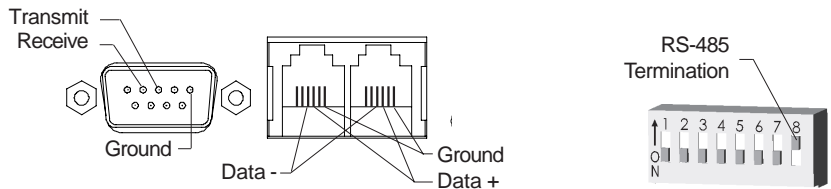
The following are the setting required for various baud rates:



The matrix operates at 8 bits, no parity and 1 stop bit.

The matrix has a male 9-pin D-Sub connector with the following connections:

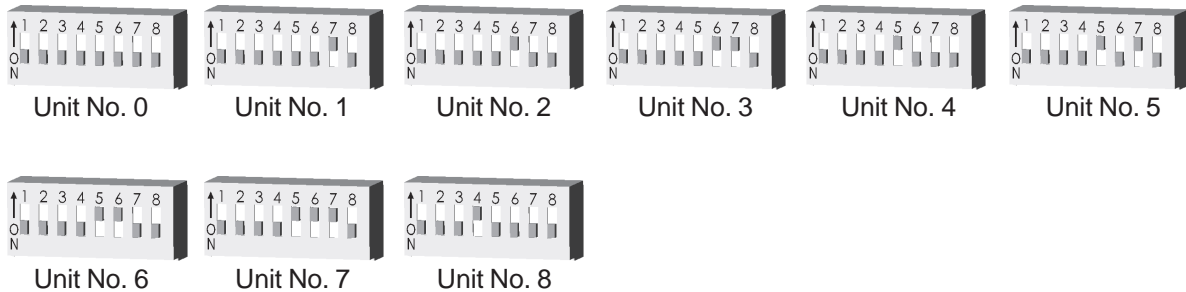
- Transmit Pin 3
- Receive Pin 2
- Ground Pin 5



The RS-485 connector is a 6-pin telephone jack label keypads on the rear of the matrix. The center two pins are used for synchronous communications. The drawing below shows the pin layout for this jack. Both Keypad jacks on the matrix are tied together to allow dropping the matrix into the RS-485 communications bus.

Setting Switcher ID Code

The matrix has an ID code which allows up to 8 units to operate together. The matrix ID code is set by the same bank of switches as the baud rate. The following shows the switch setting for these codes. **Factory default is Unit No. 0.**



RS-232 Interface and Commands

If you choose to interface to the RS-232 port yourself, the RC-8-AVM operates at baud rates of 600 to 38400 baud, no parity, 8 bits, 1 stop bit. This baud rate is changed via the baud rate selection switches.

The matrix has a male 9-pin D-Sub connector with the following connections:

Transmit	Pin 3
Receive	Pin 2
Ground	Pin 5

The following is a master list of commands the RC-8-AVM will recognize. Each will be described in detail in the following pages. Please see the notes at the end of the list for a description of the variables in each command.

Switching Commands

AVMxxBii A/V input to output

Status Commands

AVMxxS all status returned

IR Teaching Commands

AVMxxZ00 teach IR number 0 command
AVMxxZ01 teach IR number 1 command
AVMxxZ02 teach IR number 2 command
AVMxxZ03 teach IR number 3 command
AVMxxZ04 teach IR number 4 command
AVMxxZ05 teach IR number 5 command
AVMxxZ06 teach IR number 6 command
AVMxxZ07 teach IR number 7 command
AVMxxZ08 teach IR number 8 command
AVMxxZ09 teach IR number 9 command
AVMxxZ10 switch to input 1
AVMxxZ11 switch to input 2
AVMxxZ12 switch to input 3
AVMxxZ13 switch to input 4
AVMxxZ14 switch to input 5
AVMxxZ15 switch to input 6
AVMxxZ16 switch to input 7
AVMxxZ17 switch to input 8
AVMxxZ18 switch to input 9
AVMxxZ19 switch to input 10
AVMxxZ20 switch to input 11
AVMxxZ21 switch to input 12

AVMxxZ22 switch to input 13
AVMxxZ23 switch to input 14
AVMxxZ24 switch to input 15
AVMxxZ25 switch to input 16

General Commands

AVMxxZ26 read hardware revision
AVMxxZ27 read software revision

RS-232 Commands (details)

All commands end with a carriage return character. This will be represented by <CR> in the command listing.

The xx in the command AVMxx is the unit ID number. This is set via the ID selection switches.

Included with each command is an example usage to help better understand the command and its use.

AVMxxBii<CR> - Select A/V source

ii = source number

The response from the RC-8-AVM will be "AVMxx-A/V switched to ii<CR>"

Example: AVM00B03<CR> - This command will send source number 3 to the output.

AVMxxS<CR> - returns the current status of the switcher

The response from the RC-8-AVM will be "AVMxx-A/V input = ii<CR>"



AVMxxZyy<CR> - Teaches a learning remote the IR commands to operate the switcher.

yy = 00 to 25

The following list shows which command will be taught depending upon the value of yy in the command.

AVMxxZ00	teach IR number 0 command
AVMxxZ01	teach IR number 1 command
AVMxxZ02	teach IR number 2 command
AVMxxZ03	teach IR number 3 command
AVMxxZ04	teach IR number 4 command
AVMxxZ05	teach IR number 5 command
AVMxxZ06	teach IR number 6 command
AVMxxZ07	teach IR number 7 command
AVMxxZ08	teach IR number 8 command
AVMxxZ09	teach IR number 9 command
AVMxxZ10	switch to input 1
AVMxxZ11	switch to input 2
AVMxxZ12	switch to input 3
AVMxxZ13	switch to input 4
AVMxxZ14	switch to input 5
AVMxxZ15	switch to input 6
AVMxxZ16	switch to input 7
AVMxxZ17	switch to input 8
AVMxxZ18	switch to input 9
AVMxxZ19	switch to input 10
AVMxxZ20	switch to input 11
AVMxxZ21	switch to input 12
AVMxxZ22	switch to input 13
AVMxxZ23	switch to input 14
AVMxxZ24	switch to input 15

The response from the RC-8-MX will be "AVM00-Taught yy<CR>

Example: AVM00Z15<CR> - This command will teach the IR command to switch to input number 6.

AVMxxZ26<CR> - Returns the hardware revision level of the RC-8-AVM.

The response from the RC-8-AVM will be "AVM00-Hardware revision = x<CR>

AVMxxZ27<CR> - Returns the software revision level of the RC-8-AVM.

The response from the RC-8-AVM will be "AVM00-Software revision = x<CR>

Using the RC-8-AVM (manual versions only)

The RC-8-AVM is can be controlled in several ways.

- 1) When a front panel button is pressed, the unit will switch the selected input to the output.
- 2) The AVMxxB command through the RS-232 port will select an input.
- 3) An incoming IR signal will change the input port.
- 4) Selecting the input number on an attached keypad.

When an input is selected the LED above the selector button will turn green.

Teaching the IR commands (manual versions only)

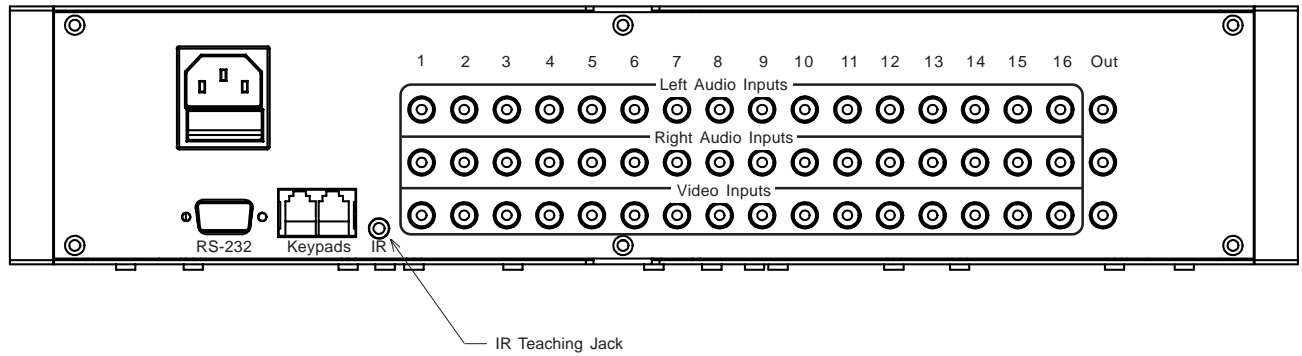
The RC-8-AVM can teach learning remotes each of the IR commands used for switching by using the AVMxxZ commands listed in the RS-232 section.

You have two choices on the type of command to teach.

- 1) Z00 to Z09 will teach just the numeric value 0 to 9. To switch you have to send two IR commands to build a two digit input number such as 01 or 14.
- 2) Z10 to Z25 will teach a command which switches directly to the input number of the command.
- 3) A Third method to teach the IR codes is to press the front panel button. When this button is pressed, the AVM will send out the codes for switching directly to that input.



To teach the commands, place an high output IR emitter (IRE or other model) into the IR jack on the back of the unit. Place this emitter next to the IR window of the learning device and have the RC-8-AVM transmit the IR command.





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