

VEEMUX™ A Series

SM-nXm-AV-LCD Audio/Video Matrix Switch Installation and Operation Manual



WARRANTY INFORMATION

The warranty period on this product (parts and labor) is one (1) year from the date of purchase. Please contact Network Technologies Inc at (800) RGB-TECH (800-742-8324) or (330) 562-7070 for information regarding repairs and/or returns. A return authorization number is required for all repairs/returns.

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Introduction

The SM-nXm-AV-LCD Audio/Video Matrix switch (VEEMUX-A) allows up to 32 audio/video sources (n) to be connected to up to 16 destinations (m). Different destinations can even be connected to the same source. Video resolution up to 1920x1200@85Hz is supported with no degradation – guaranteed. Stereo audio is supported, as well as volume control and separate audio/video switching. An LCD on the front panel indicates the current connections. The VEEMUX-A can be controlled by three methods: Front Panel Keypad, RS-232 interface, or optional Infrared Remote.

Specifications

Video

Bandwidth	200 MHz, fully loaded
Maximum Resolution	1920 x 1200 @ 85Hz

Video Input

Signal type	RGBHV, RGsB, RGBS
Connectors.....	15 Pin HD Connector
Maximum input level	1 Vp-p RGB, TTL for sync
Impedance	75 Ohm

Video Output

Signal type	RGBHV, RGsB, RGBS
Connectors.....	15 Pin HD Connector
Maximum input level	1 Vp-p RGB, TTL for sync
Impedance	75 Ohm

Audio

Frequency response	20Hz to 20kHz, +/- 0.5dB
THD + N	0.01% @ 1kHz
S/N	> 90 dB
Crosstalk	> 85 dB @ 1kHz

Audio Input

Signal type	Stereo unbalanced
Connectors.....	3.5mm jack
Impedance	10kOhm
Maximum input level	1Vrms or 2.5Vp-p

Audio Output

Signal type	Stereo unbalanced
Connectors.....	3.5mm jack
Gain adjustment.....	-20dB to +10dB
Impedance	< 0.1 Ohm

General

Power.....	110 or 220 VAC at 50 or 60 Hz, internal
Rack mount.....	Yes – available on all sizes
Enclosure type	Metal
Dimensions	19"W x 10/12"D x 3.5/5.25/7/8.75"H (depends on model)

Ordering Information

The SM-nXm-AV-LCD Audio/Video Matrix switch (VEEMUX-A) can be ordered in many sizes and with several control options. The base unit includes a user keypad and an RS232 port to make up a complete system, with an option for an infrared control. The infrared option is purchased separately, allowing for maximum user satisfaction in each unique configuration.

The VEEMUX-A Audio/Video Matrix switch is built to a specific size ranging from 8 to 32 inputs and 2, 4, 8, 12, or 16 outputs. Simply order a VEEMUX-A-nXm where the "n" in the part number represents the number of inputs and the "m" in the part number represents the number of outputs.

SM-nXm-AV-LCD

Replace the "n" with 8,16, or 32

Replace the "m" with 2,4,8,12, or 16

The following list represents the available sizes that can be ordered:

SM-8x2-AV-LCD	SM-16x2-AV-LCD	SM-32x2-AV-LCD
SM-8x4-AV-LCD	SM-16x4-AV-LCD	SM-32x4-AV-LCD
	SM-16x8-AV-LCD	SM-32x8-AV-LCD
	SM-16x12-AV-LCD	SM-32x16-AV-LCD
	SM-16x16-AV-LCD	

Optional Features

- DDC Support (see page 15)- to order, add "D" to the part number (i.e. SM-nXm-AVD-LCD)
- Infrared Control (see page 14)- to order, add "IR" to the part number (i.e. SM-nXm-AV-LCD-IR)

Cables

All cables are sold separately. The following table lists the available stocked cables with their length in feet. All of the 15HD and BNC input and output connectors on VEEMUX-A are female. Custom cables are available – contact NTI for pricing and distance / resolution limitations.

VGA	
VEXT-3/6/10/15/25/35/50/75/100-MM	Multi-coax high resolution VGA or SVGA video cable. Connectors are 15HD male-male (used for INPUTS)- 3 thru 100 feet
VEXT-3/6/10/15/25/35/50/75/100	Multi-coax high resolution VGA or SVGA video cable. Connectors are 15HD male-female (used for OUTPUTS)- 3 thru 100 feet
VINT-5B-6	Multi-coax high resolution VGA to BNC cable. Connectors are 15HD male to 5 BNC's- 6 feet long
AUDIO	
SA-6/10-MM	Audio Interface Cable- Connectors are 3.5mm male-male - 6/10 feet long
SA-6/10-MF	Audio Extension Cable- Connectors are 3.5mm male-female- 6/10 feet long

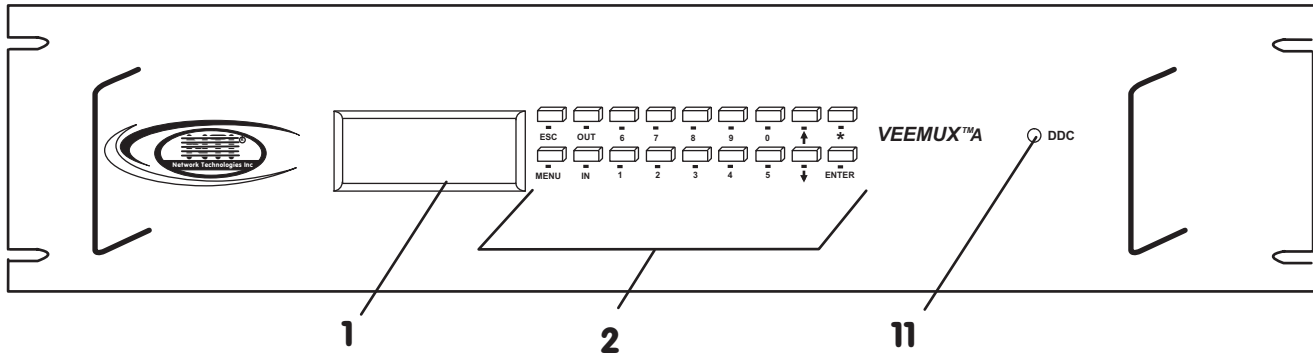
Basic Operation

The VEEMUX-A allows any source to be connected to any destination at any time with no restrictions or limitations.

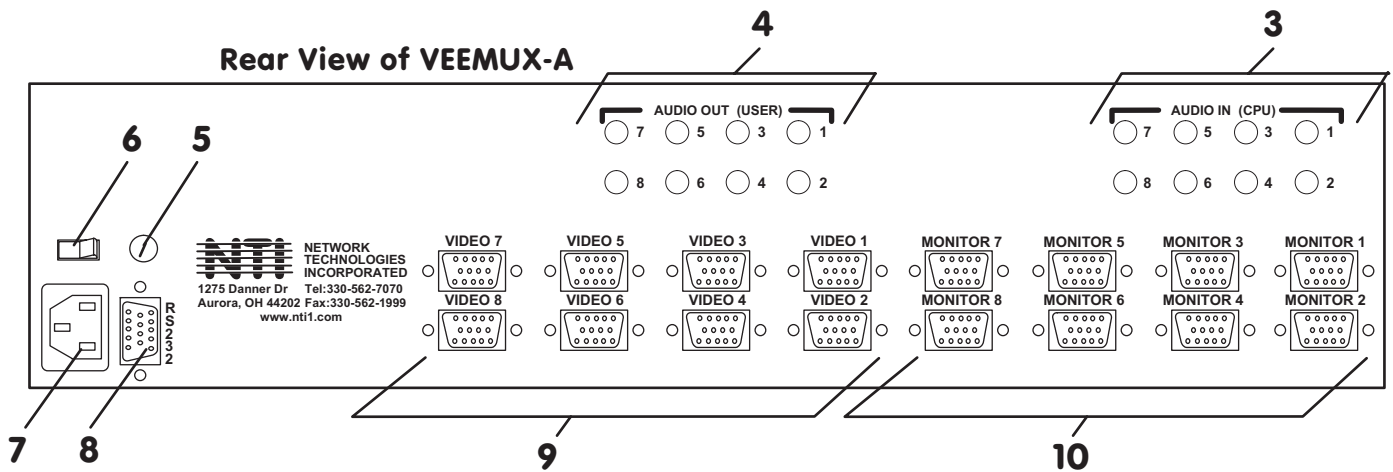
- Audio and Video connections can be made concurrently or separately (i.e. user 1 can view video from port 3 and hear audio from port 11).
- Video inputs accept any RGBHV, RGBS, or RGSB signal.
- Video outputs are compatible with any RGBHV or RGBS monitor, regardless of input. (RGSB monitor requires RGSB input)
- Audio inputs accept any standard line level audio (1Vrms or 2.5Vp-p).
- Audio outputs are capable of driving an 8 Ohm speaker load with 200mW of continuous RMS power.
- The Audio output volume of the AV matrix is adjustable for each output port.

FEATURES AND FUNCTIONS

Front View of VEEMUX-A



Rear View of VEEMUX-A



Features and Functions

1. LCD Display- for visual indication of connection between the user and a specific CPU.
2. Keypad- buttons for user control over switch functions
3. Audio IN- for connection of audio cables from audio sources
4. Audio OUT- for connection of audio cables to audio output devices (speakers)
5. Fuse Holder- holder for replaceable overcurrent protection fuse
6. Power ON/OFF switch
7. IEC Power Connector- for attachment of power cord (not available on all units)
8. RS232 In/Out - for attaching RS232 interface cable from a CPU to control the functions of one or more switches
9. VIDEO x- 15HD female connectors- for attachment of video cables from video sources
10. Monitor x- 15HD female connectors- for connection of user monitors
11. DDC button- for manual update of DDC information between the monitor and the CPU(s) attached (optional)

Installation

1. Turn OFF power to all video sources (inputs) that will be connected to the VEEMUX-A before connecting or disconnecting any cables.
2. For each video source, connect a VEXT-xx-MM cable from the video port of the source to a video input (VIDEO-1) of the VEEMUX-A (see Fig. 1).
3. Repeat step 2 for remaining video sources.
4. For each audio source, connect a SA-xx-MM cable from the audio source to the port labeled AUDIO IN 1.

Notes:

The audio port on a CPU may be marked "line out", "spkr", or "headphones". If all 3 jacks are available, use the jack marked "line out".

The "line out" jack is typically lime green and may be marked with this symbol



The "spkr" jack is typically orange, and may be marked with this symbol



The "headphones" jack may be marked with this symbol



5. Repeat step 4 for remaining audio sources, connecting them to any remaining AUDIO IN ports.

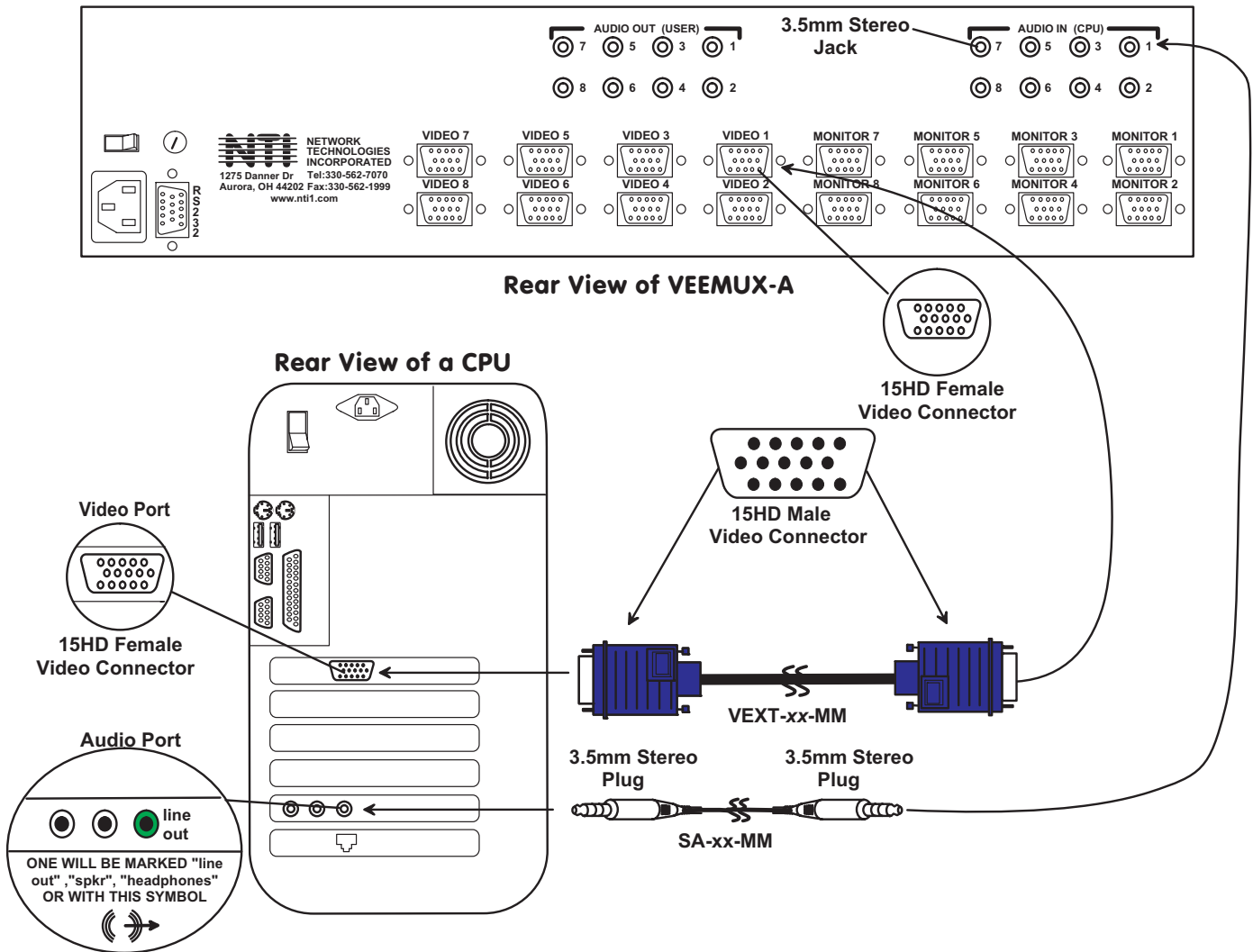


Figure 1- Install Audio and Video Source Cables

6. Connect a monitor to the port labeled MONITOR 1 on the rear of the VEEMUX-A (see Fig. 2).
7. Repeat step 6 for remaining monitors (outputs).
8. Connect audio output device (speakers) to port labeled AUDIO OUT 1.
9. Repeat step 8 for remaining audio output devices, connecting them to any remaining AUDIO OUT ports.
10. If using RS232 control, connect the video source's serial port to the VEEMUX-A "RS232" with a DINT-xx.
11. Plug the VEEMUX-A to an AC power outlet.
12. Turn ON power to the VEEMUX-A.
13. Turn ON power to any or all of the video and/or audio sources connected to the VEEMUX-A.

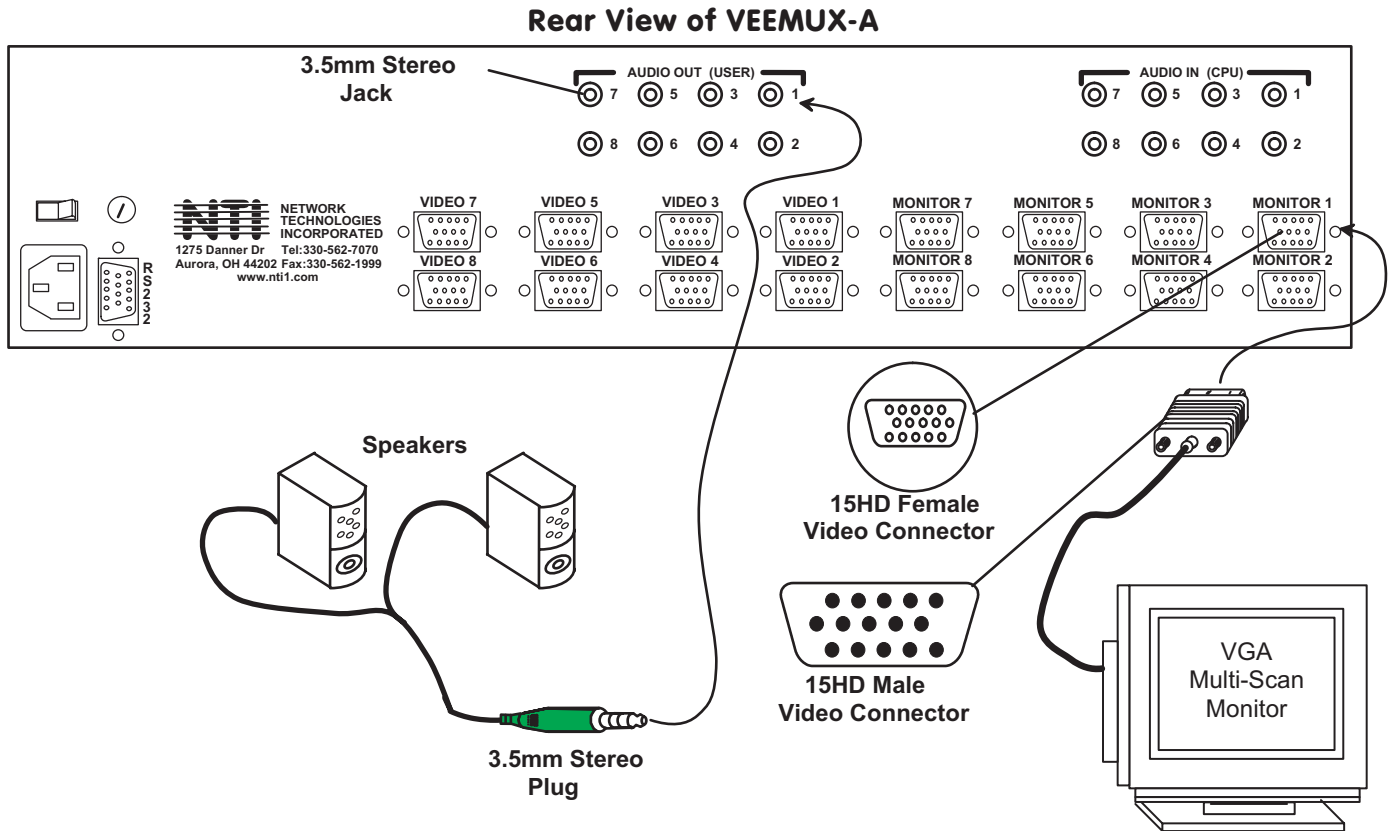


Figure 2- Install Monitors and Speakers

Control Options

The VEEMUX-A Audio/Video Matrix Switch has three methods of control: Front Panel Keypad, RS232, or Infrared. Every unit comes standard with the Front Panel Keypad and RS232 built-in. If desired, the Infrared option must be requested at the time of the order. The Infrared option requires the purchase of a separate remote control device (Infrared transmitter) as well as an Infrared receiver to be installed in the unit. No software is involved (see page 14 – Infrared Control). With the RS232 option, there are no external devices to be purchased. NTI provides Software commands as well as a test program to ensure the RS232 functions properly (see page 8 – RS232 Control).

Front Panel Keypad Control

The front panel keypad and LCD (drawing below) allow the user to view and change current audio and video connections, adjust audio volume and configure the RS-232 control interface. The keypad buttons perform the following functions.

ESC Escape back to the main display.

0 – 9 Used to enter numbers. (#)

OUT Specifies output port

IN Specifies input port

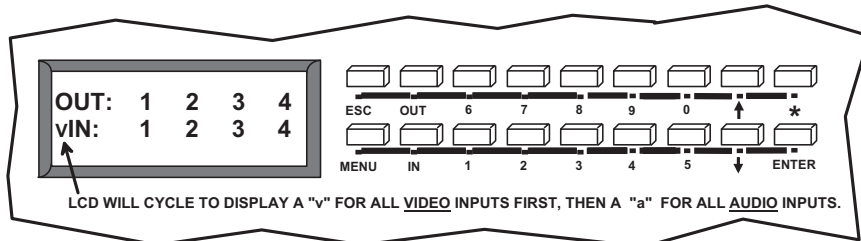
ENTER Forces selection of single digit entries

▲ Display next 4 connections

▼ Display previous 4 connections

MENU Display the RS-232 menu. (See RS232 control on page 8.)

* Additional functions



Making Connections

The VEEMUX-A allows audio and video connections to be made concurrently or separately. In both situations, the output port number must always be entered first.

• Connecting audio and video concurrently

When making this connection, any one of the following commands may be used:

1. <OUT>, Single digit output port number, <IN> or <ENTER>, Single digit input port number, <ENTER>.
Ex: <OUT> 3 <IN> 5 <ENTER>
2. Single digit output port number, <ENTER>, Single digit input port number, <ENTER>.
Ex: 3 <ENTER> 5 <ENTER>
3. Double digit output port number, Double digit input port number.
Ex: 03 05

All outputs can be connected to a single input by using <*>:

1. <*>, Single digit input port number, <ENTER>
Ex: <*> 5 <ENTER>
2. <*>, Double digit input port number
Ex: <*> 05

• Connecting audio only

To make an audio connection without changing the current video connection, use any of the following commands:

1. <OUT>, <▼>, <▼>, Single digit output port number, <IN> or <ENTER>, Single digit input port number, <ENTER>.
Ex: <OUT> <▼> <▼> 3 <IN> 5 <ENTER>
2. <OUT>, <▼>, <▼>, Double digit output port number, Double digit input port number.
Ex: <OUT> <▼> <▼> 03 05

All audio outputs can be connected to one audio input by using <*>:

1. <*>, <▼>, <▼>, Single digit input port number, <ENTER>
Ex: <*> <▼> <▼> 5 <ENTER>
2. <*>, <▼>, <▼>, Double digit input port number
Ex: <*> <▼> <▼> 05

- **Connecting video only**

To make a video connection without changing the current audio connection, use any of the following commands:

1. <OUT>, <▲>, Single digit output port number, <IN> or <ENTER>, Single digit input port number, <ENTER>.
Ex: <OUT> <▲> 3 <IN> 5 <ENTER>
2. <OUT>, <▲>, Double digit output port number, Double digit input port number.
Ex: <OUT> <▲> 03 05

All video outputs can be connected to one video input by using <*>:

1. <*>, <▲>, Single digit input port number, <ENTER>
Ex: <*> <▲> 5 <ENTER>
2. <*>, <▲>, Double digit input port number
Ex: <*> <▲> 05

Volume Control

The volume level can be adjusted on each output port.

- To increment <▲> or decrement <▼> the volume, use the following command:
<OUT>, <▼>, Double digit output port number, <▲> increment or <▼> decrement, <ENTER>
Ex 1: <OUT> <▼> 03 <▲> <▲> <▲> <ENTER>
This will increment the volume by +6dB (2dB/ press).
Ex 2: <OUT> <▼> 14 <▼> <▼> <ENTER>
This will decrement the volume by -4dB.
- To Mute, use the command:
<OUT>, <▼>, Double digit output port number, the <0> key, <ENTER>
Ex: <OUT> <▼> 03 0 <ENTER>
This will mute output 3
- To Un-mute, use the instruction:
<OUT>, <▼>, Double digit output port number, the <1> key, <ENTER>
Ex: <OUT> <▼> 03 1 <ENTER>
This will un-mute output 3

Memory Functions

There are 10 memory locations available to save connection configurations.

- **Saving Connections**
To save all current connections, use the following command:
<*>, <OUT>, Memory location, <ENTER>
Ex: <*> <OUT> 5 <ENTER>
- **Restoring Connections**
To restore connections from memory, use the following command:
<*>, <IN>, Memory location, <ENTER>
Ex: <*> <IN> 5 <ENTER>

Serial Menu

The serial menu is used to configure the RS-232 port.

- The baud rate is selected from the "Baud Rate Menu." To access this menu, use the command:
<MENU>, the <1> key

Next, press the keypad number corresponding with the desired baud rate:

<1> – 1200
<2> – 2400
<3> – 4800
<4> – 9600

Ex: <MENU> 1 4
This will select 9600 baud

- To set the switch address, use the following instruction:
<MENU>, the <2> key, Double digit address (from 01 to 15)
Ex: <MENU> 2 03
This will set the address at 03

RS232 Control

Remote Connection

The RS232 Interface is designed to control the switch via serial (RS232) daisy chain connection from any host computer or other controller with an RS232 communications port. There is, however, a restriction that must be followed:

A program must be used that will send an entire command line all at once, not character by character. (The HyperTerminal program in WINDOWS cannot be used, as it sends each character one at a time.)

The pin outs for the DB-9 connector on the unit are as follows:

RS232 INPUT (DB-9 FEMALE)

PIN	SIGNAL	FUNCTION
1	<i>none</i>	<i>no connection</i>
2	TXD	Transmit Data (RXD at host)
3	RXD	Receive Data (TXD at host)
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	<i>none</i>	<i>no connection</i>

On the DB-9 female connector, pins 4 (DTR) and 6 (DSR) are shorted and pins 7 (RTS) and 8 (CTS) are shorted. Therefore, host handshaking is bypassed and TXD and RXD are the only active signals. A straight through DB-9 cable (not null modem) will work for most CPUs. To daisy chain multiple units, use NTI Matrix-Y-1 "Y" cables, except for the last unit connected. (see Fig 3).

Baud Rate

The unit powers up with a default baud rate of 9600 and a fixed data protocol of 8 data bits, no parity and 1 stop bit. The baud rate is selectable through the "Baud Rate Menu". A data protocol of 8 data bits, no parity, and 1 stop bit is used in the daisy chain communication.

Unit Address

To allow multiple units to be controlled from a single host port, the RS232 control interface is designed to allow "daisy chaining" up to 15 units using the NTI Matrix-Y-1 "Y" cables. By setting the appropriate unit address with the keypad, each unit can be given a unique address (1-15). Then the unit will only respond to commands on the bus if its address is embedded in the command. (See illustration below.)

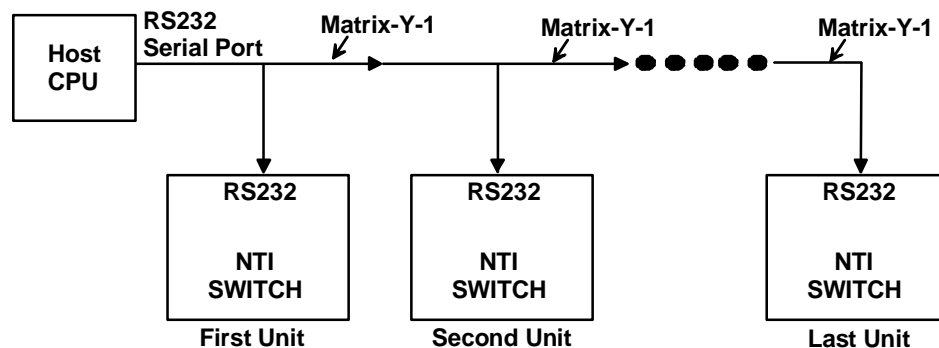


Figure 3- RS232 Connections for Daisy-chain

Command Protocol

Host controller commands supported by the unit are defined below. All commands should be terminated with a <CR> (carriage return). When a command is sent, the entire string is echoed back to the host along with a response from the addressed unit as shown in the command definitions. All characters should be upper case, and all numbers below 10 should have a leading 0 (ex: = 01).

NOTE: For units with one output or user port, use 01 for the output select.

RS-232 Command Protocol Quick Reference

Legend:

(All numbers must be two digits)

SW : Switch (01-15)
BR : Baud Rate Code (12,24,48,96)
VV : Volume Level (00-99, XX=UNSUPPORTED)
MU : Mute State (00=UNMUTE, 01=MUTE, XX=UNSUPPORTED)
OP : Output Port (01-MAXOUTPUTS)
IP : Input Port (01-MAXINPUTS)
MM : Save Into Memory Bank (00-09)
LL : Load From Memory Bank (00-09)
<CR> : Carriage Return (Hex 0xD)

Command String	Good Response	Description
CS SW,IP,OP	*<CR>	VIDEO Connect One Output/User Port To Input/CPU Port
CA SW,IP	*<CR>	VIDEO Connect All Output/User Ports To Input/CPU Port
RO SW,OP	*<CR>IP<CR>	VIDEO Read Connection For Output/User Port
AS SW,IP,OP	*<CR>	AUDIO Connect One Output/User Port To Input/CPU Port
AA SW,IP	*<CR>	AUDIO Connect All Output/User Ports To Input/CPU Port
AO SW,OP	*<CR>IP<CR>	AUDIO Read Connection For Output/User Port
AM SW,OP,MU	*<CR>	Set Mute State For Output/User Port
AV SW,OP,VV	*<CR>	Set Volume Level For Output/User Port
CC SW,MM	*<CR>MM<CR>	Save Matrix Connections Into Memory Bank
RC SW,LL	*<CR>LL<CR>	Restore Matrix Connections From Memory Bank
CB 00,BR	None	Change Baud Rate For All Switches
RS SW	*<CR>	Internal Reset
RV SW,00	*<CR>string\0<CR>	Read NTI Version String
RU SW	*<CR>IP,OP<CR>	Read Unit Size
AR SW,OP	*<CR>MU,VV<CR>	Read Mute, Volume For Output/User Port

RS-232 Command Protocol Full Specification

CC - Save Matrix Connections Into Memory Bank

Format:

CC SW,MM<CR>

Successful Response:

*<CR>

MM<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

Will save all VIDEO in/out and AUDIO in/out connections into the specified memory bank. Responds with an * for success, followed by the memory bank it was saved to.

RC - Restore Matrix Connections From Memory Bank

Format:

RC SW,LL<CR>

Successful Response:

*<CR>

LL<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

Will restore all VIDEO in/out and AUDIO in/out connections to the state saved in the specified memory bank. Responds with an * for success, followed by the memory location it was restored from.

CB - Change Baud Rate For All Switches

Format:

CB 00,BR<CR>

Successful Response:

None

Syntax or Transmission Error:

?<CR>

Behavior:

All switches on the serial bus will change their baud rate to the new baud rate. 12 specifies 1200 baud, 24 specifies 2400 baud, 48 specifies 4800 baud, 96 specifies 9600 baud.

RS - Internal Reset

This feature is not available in the VEEMUX-A.

RV - Read NTI Version String

Format:

RV SW,00<CR>

Successful Response:

*<CR>

string<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

Returns the NTI version string for this switch. Generally contains code date and matrix size information in some form. Can be useful for determining the model of NTI switch being communicated with.

RU - Read Unit Size

Format:

RU SW<CR>

Successful Response:

*<CR>

IP,OP<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

Returns the total number of input/CPU ports and output/user ports.

CS - VIDEO Connect One Output/User Port To Input/CPU Port

Format:

CS SW,IP,OP<CR>

Successful Response:

*<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

This will connect a single VIDEO output/user port to a single VIDEO input/CPU port.

CA - VIDEO Connect All Outputs/Users Port To Input/CPU Port

Format:

CA SW,IP<CR>

Successful Response:

*<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

This will connect all of the VIDEO output/user ports on the switch to a single VIDEO input/CPU port.

RO - VIDEO Read Connection For Output/User Port

Format:

RO SW,OP<CR>

Successful Response:

*<CR>

IP<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

This will find out which VIDEO input/CPU port is connected to the specified VIDEO output/user port.

AS - AUDIO Connect One Output/User Port To Input/CPU Port

Format:

AS SW,IP,OP<CR>

Successful Response:

*<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

This will connect a single AUDIO output/user port to a single AUDIO input/CPU port.

AA - AUDIO Connect All Outputs/Users Ports To Input/CPU Port

Format:

AA SW,IP<CR>

Successful Response:

*<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

This will connect all of the AUDIO output/user ports on the switch to a single AUDIO input/CPU port.

AO - AUDIO Read Connection For Output/User Port

Format:

AO SW,OP<CR>

Successful Response:

*<CR>

IP<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

This will find out which AUDIO input/CPU port is connected to the specified AUDIO output/user port.

AM - Set Mute State For Output/User Port

Format:

AM SW,OP,MU<CR>

Successful Response:

*<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

This command will set the mute state for the specified AUDIO output/user port. The mute state is either 00 or 01, with 00 being UNMUTE and 01 being MUTE.

AV - Set Volume Level For Output/User Port

Format:

AV SW,OP,VV<CR>

Successful Response:

*<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

On switches that support AUDIO and support volume control of the output/user port, this command will set the volume of the specified AUDIO output/user port from a scale of 00 to 99, which represents a logarithmic volume.

Serial Data (VV)	Audio Volume
90 – 99	+10dB
80	0dB
60	-20dB
0 – 28	-52dB

AR - Read Mute, Volume For Output/User Port

Format:

AR SW,OP<CR>

Successful Response:

*<CR>

MU,VV<CR>

Syntax or Transmission Error:

?<CR>

Behavior:

This command will read both the mute state and volume level of the specified output/user port. The response will include a mute state and volume level MU,VV<CR>.

MU is 00 if the port is UNMUTED, MU is 01 if the port is MUTED.

VV is a value between 00 to 99 (see AV command).

RS232 Interface Test Program

This software allows a user to test the functions of an NTI server switch, matrix switch or Multi-user/Multi-platform switch RS232 interface. The executable file SERTEST.EXE runs the program and generates a main menu with the 3 selections described below:

Main Options

- Matrix Options - send commands to the matrix unit.
- Setup Options - set COM port, baud rate, and unit address
- About SERTEST - display the program version

If Matrix Options is selected, the following menu is displayed:

MATRIX OPERATIONS

- 1) Reset Unit (1)
Feature not available in VEEMUX-A.
- 2) Reset All Units
Feature not available in VEEMUX-A.
- 3) Connect KVM Output/User to an Input/CPU
- connect an output to an input (KVM ports only)
- 4) Connect All KVM Outputs/Users to an Input/CPU
- connect all outputs to an input (KVM ports only)
- 5) Connect Audio Output/User to an Input/CPU
- connect an output to an input (Audio ports only)

- 6) Connect All Audio Outputs/Users to an Input/CPU
 - connect all outputs to an input (Audio ports only)
- 7) Change Mute Status for Audio Output/User
 - mute or un-mute the Audio port output
- 8) Change Volume for Audio Output/User
 - change Audio port output volume
- 9) Read Connection for KVM Output/User
 - read what input is connected to the specified output (KVM ports only)
- a) Read Connection for Audio Output/User
 - read what input is connected to the specified output (Audio ports only)
- b) Read Mute Status and Volume for Audio Output/User
 - read the volume and the mute status of the specified output (Audio ports only)
- c) Read Unit Size
 - read the switch size (number of inputs and outputs)
- d) Read Unit Version/Revision String
 - read a string containing the switch version, type, and size
- e) Save I/O Connections into Unit Memory
 - save the connections into switch memory bank
- f) Restore I/O Connections from Unit Memory
 - restore the connections from switch memory bank
- g) Save All Units I/O Connections into Units Memory
 - save the connections into switch memory bank, command for all switches
- h) Restore All Units I/O Connections from Units Memory
 - restore the connections from switch memory bank, command for all switches
- i) Change All Units Baud Rate (9600/COM1:)
 - change RS-232 Baud rate of all switches
 - the current baud rate and serial port are displayed in parentheses

SET OPTIONS

- 1) select Com port current: (COM1:)
 - select PC serial port
 - the current PC serial port is displayed in parentheses
- 2) select Baud rate current: (9600)
 - select PC serial port baud rate
 - the current baud rate is displayed in parentheses
- 3) set unit Address current: (1)
 - select the unit address of the switch to be connected to by this program
 - the current address is displayed in parentheses

For any selection that requires user input, the user is prompted. When commands are sent to the matrix unit, the command string and matrix unit responses are echoed to the screen. All commands generated by the program are formatted according to the information provided in sections above. If any transmission problems are detected, an error message is displayed.

[Matrix Switcher's Control Program For Windows 9X, NT, AND 2000](#)

This software is an easy and powerful graphical program that controls NTI matrix switches through an RS232 interface.

The software performs best on monitors set to a screen resolution of at least 800 X 600. Refer to the selection "Documentation" in the NTI program menu for instruction on how to operate the Matrix Switcher's Control Program.

Infrared Control (Optional)

IRT-20X16

Included with IRT-20x16:

- (1) Infrared Transmitter
- (2) AA Cell Batteries

Instructions

1. Move ON/OFF switch to the ON position.

Select Output First

2. Connect the desired output by selecting one of the 16 touch activated buttons.
3. After the output has been selected, be sure the red light on the IR receiver is ON before selecting an input.

Select Input Second

4. Connect the desired input by selecting one of the 20 touch activated buttons

Battery Replacement

1. Make sure unit is shut off before replacing battery.
2. Remove slide cover on rear of unit.
3. Remove old batteries carefully.
4. Insert (2) new "AA" cell batteries.
5. Replace slide cover on unit.

Specifications

- 50 feet maximum operating range between the transmitter and the front of the matrix switch / infrared receiver. (Line of sight required.)
- Select up to 16 outputs by depressing the touch activated buttons labeled output.
- Select up to 20 inputs by depressing the touch activated buttons labeled input.
- Operates with (2) "AA" batteries.
- LO BATT light indicates low battery at approximately 2.25 volts.

Troubleshooting

PROBLEM

IR Remote not selecting input / output

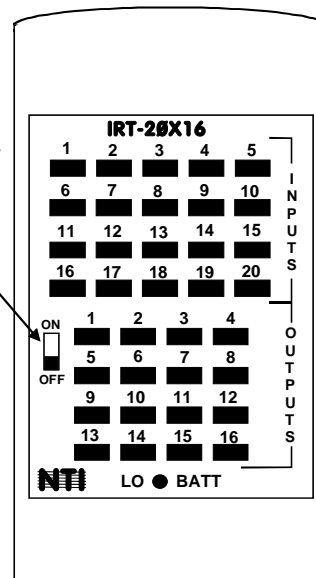
No Audio/Video

SOLUTION

Check battery. Make sure ON / OFF is switched ON.

Check all cable connections on video source and switch.

1. Move ON / OFF switch to the ON position.



4. Select one of the 20 input touch activated buttons

2. Select one of the 16 output touch activated buttons.

3. Make sure red LED on the IR receiver is on before selecting input.

DDC Support (Optional)

DDC information allows the CPU to automatically select the optimal resolution for the monitor by receiving, at power up, information from the monitor concerning its resolution specifications.

When DDC Support is installed, the DDC information is acquired from the monitor by the VEEMUX-A switch when the VEEMUX is powered-up. **A monitor with DDC support must be connected to MONITOR 1 for this to occur.** The DDC information will be made available at every CPU port.

The DDC information can also be acquired by pressing the DDC button located on the front of the switch. This button allows the monitor configuration to be changed without powering down the switch.

Notes:

- 1. All monitors connected to the VEEMUX-A switch with DDC support must be able to support at least the maximum resolution of the DDC monitor connected to "MONITOR 1".***
- 2. In order for the CPU to correctly receive the DDC information from the switch at boot-up, the switch must be powered up before all attached CPUs.***

Safety Statements

Grounding

These products have protective earth ground terminals and are built with full attention to consumer safety. There must be an un-interruptible safety earth ground between the main power source and the product's power cord or supplied power cord set. If ever the possibility exists for the grounding protection to have been reduced in any way, disconnect the power supply until the grounding connection has been fully restored.

Servicing

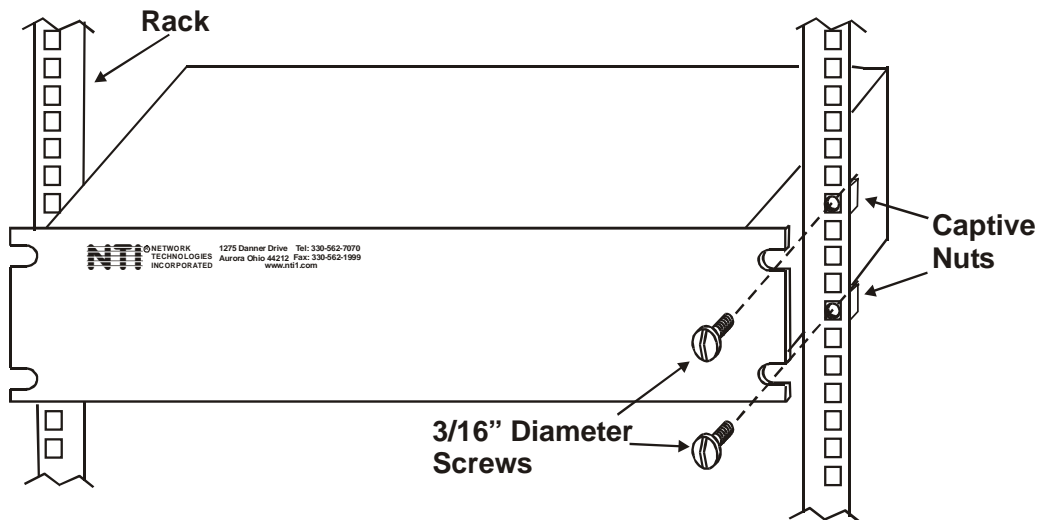
NTI products are not intended to be serviced in the field and contain no user-serviceable parts. In the event repair is needed, all servicing must be performed by factory trained and authorized service personnel. Only those items specifically identified in this manual (if any) may be adjusted by the user of this product and adjusted only as instructed in this manual.

Rack Mounting Instructions

This NTI switch was designed to be directly mounted to a rack. It includes a mounting flange to make attachment easy. Install 4 captive nuts to the rack in locations that line up with the holes (or slots) in the mounting flange on the NTI switch. Then secure the NTI switch to the rack using four 3/16" diameter screws (not provided). Each screw should be of sufficient length to go completely through the NTI mounting flange, rack frame and fully engage all threads in the captive nut. Be sure to tighten all mounting screws securely.

Do not block power supply vents in the NTI switch chassis (if provided) . Be sure to enable adequate airflow in front of and behind the NTI switch.

Attach all cables securely to the switch and where necessary supply adequate means of strain relief for cables.



Part No:

- SM-8X2-AV-LCD
- SM-8X4-AV-LCD
- SM-16X2-AV-LCD
- SM-16X4-AV-LCD

- SM-16X8-AV-LCD
- SM-16X12-AV-LCD
- SM-16X16-AV-LCD
- SM-32X2-AV-LCD

- SM-32X4-AV-LCD
- SM-32X8-AV-LCD
- SM-32X16-AV-LCD

SERIAL NO: _____

DATE: _____

INSPECTED BY: _____

DDC Option

IR Option

Part No. : IRT-20X16 (Optional)

SERIAL NO: _____

DATE: _____

INSPECTED BY: _____

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