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VEEMUX® Series

SM-nXm-15V-LCD

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) 742-8324** (800-RGB-TECH) or **(330) 562-7070** or visit our website at http://www.nti1.com for information regarding repairs and/or returns. A return authorization number is required for all repairs/returns.

CHANGES
The material in this guide is for information only and is subject to change without notice. Network Technologies Inc reserves the right to make changes in the product design without reservation and without notification to its users.

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INTRODUCTION

The SM-nXm-15V-LCD (n = number of inputs (video sources), m = number of outputs (monitors)) video matrix switch (VEEMUX) allows any of up to 32 video sources to output to any or all of up to sixteen (16) monitors. The configuration of the VEEMUX is determined at time of order (i.e. 16x4, 8x16, etc.). The bandwidth of the SM-nXm-15V-LCD is 200MHz and video resolutions through 1900 x1200 are supported with no degradation. The switch can be controlled with the Front Panel Keypad, RS232 interface, or an optional Infrared Remote.

The VEEMUX 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. The infrared option, purchased separately, allows for maximum user satisfaction in each unique configuration.

Basic Operation

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

- 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)

Compatibilty

The SM-nXm-15V-LCD is made to support video inputs from VGA (15HD – H & V Sync) only.

Ordering Information

The SM-nXm-15V-LCD is built to a specific size ranging from 2, 4, 8, 12, or 16 monitors and 4 to 32 video sources. The “n” in the part number represents the number of video sources. Select a switch built for 4, 8, 16, or 32 video sources. The “m” in the part number represents the number of outputs (monitors). A switch built for 2, 4, 8, 12, or 16 monitors may be ordered. It is not necessary to fully populate all of the connectors on the unit (ex. an SM-16x8 switch has the capability of supporting 16 video sources and 8 monitors, but it will operate with only 14 video sources with 7 monitors connected.

SM-nXm-15V-LCD

Replace the “n” with 4,8,16, or 32
Replace the “m” with either 2, 4 ,8,12,or 16
The following list represents the available sizes that can be ordered:

SM-4x2-15V-LCD	SM-8x2-15V-LCD	SM-16x2-15V-LCD	SM-32x2-15V-LCD
SM-4x4-15V-LCD	SM-8x4-15V-LCD	SM-16x4-15V-LCD	SM-32x4-15V-LCD
	SM-8x8-15V-LCD	SM-16x8-15V-LCD	SM-32x8-15V-LCD
		SM-16x12-15V-LCD	SM-32x16-15V-LCD
		SM-16x16-15V-LCD	

Options

DDC Support (see page 16)
This feature makes the DDC information of the monitor connected to port 1 available to each CPU.
This feature is ordered by adding a "D" following the size designation in the model number (i.e. SM-8X2**D**-15V-LCD)

Infrared Control (see page 11)
This feature adds the ability to control the VEEMUX via an infrared remote.
This feature is ordered by adding the suffix "-IR" to the model number when ordering (i.e. SM-4X2-15V-LCD**-IR**)

Materials

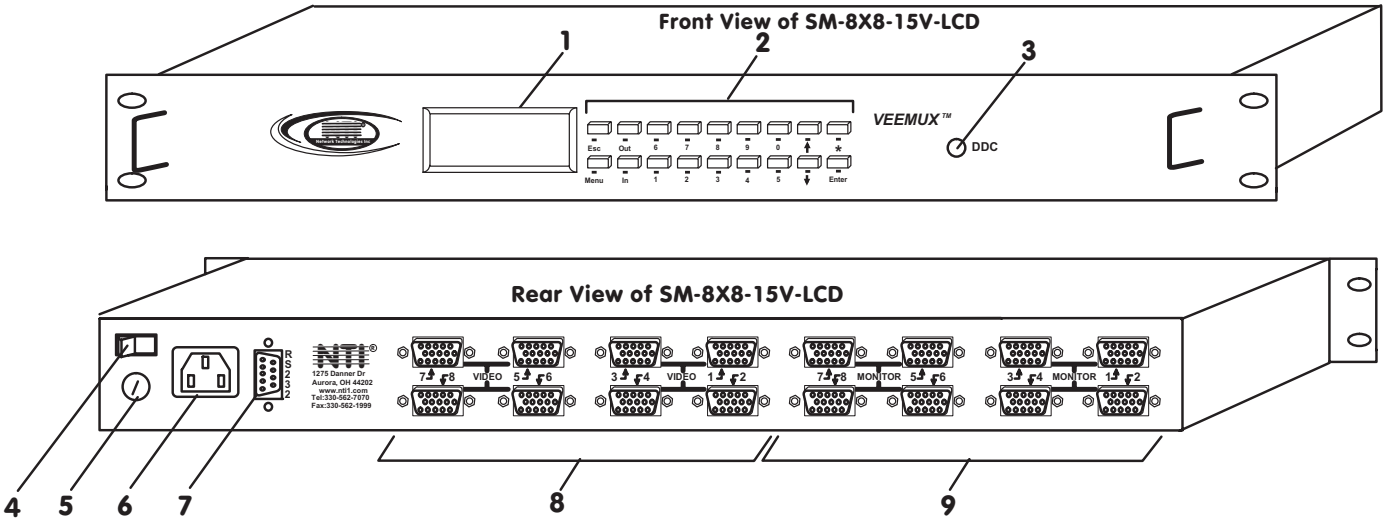
Materials Supplied with this kit:

- NTI SM-nXm-15V-LCD Video Matrix switch
- IEC Line cord, country specific
- This owners manual

Cables

All cables are sold separately. The following tables list the available stocked cables with their length in feet. All VGA input and output connectors on Matrix Switches are FEMALE. When using multi-coax high resolution VGA to BNC cables, the BNC connectors are also FEMALE for input and output. Custom cables are available – contact NTI for pricing and distance / resolution limitations.

NTI NAME	DESCRIPTION
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 fee long
RS232	
Matrix-Y-1 or see page 16 for alternative cables	RS232 Interface Cable- Connectors are 9D male- female-female 12" long (also see alternative cable specifications on page 16)



FEATURES AND FUNCTIONS

1. LCD Display for visual indication of connection between the monitor and a specific video source.
2. Keypad buttons for user control over switch functions
3. DDC button- for manual update of DDC information between the monitor and the CPU(s) attached (optional- see page 26)
4. Power ON/OFF switch
5. Fuse Holder- holder for replaceable overcurrent protection fuse
6. IEC Power Connector for attachment of power cord
7. RS232- female 9D connector- for attaching RS232 interface cable from a CPU to control the functions of one or more switches
8. VIDEO x - female 15HD connectors- for connection of video source cables
9. MONITOR x- female 15HD connectors- for connection of monitors

INSTALLATION

Connect the Sources and Monitors

1. Turn OFF power to all video sources (inputs) that will be connected to the VEEMUX before connecting or disconnecting any cables.
2. Connect a VEXT-xx-MM cable from the video port of a video source to a 15HD female video connector labeled VIDEO 1 on the VEEMUX. (See Fig. 1)
3. Connect additional video sources to remaining 15HD female VIDEO x connectors as desired.

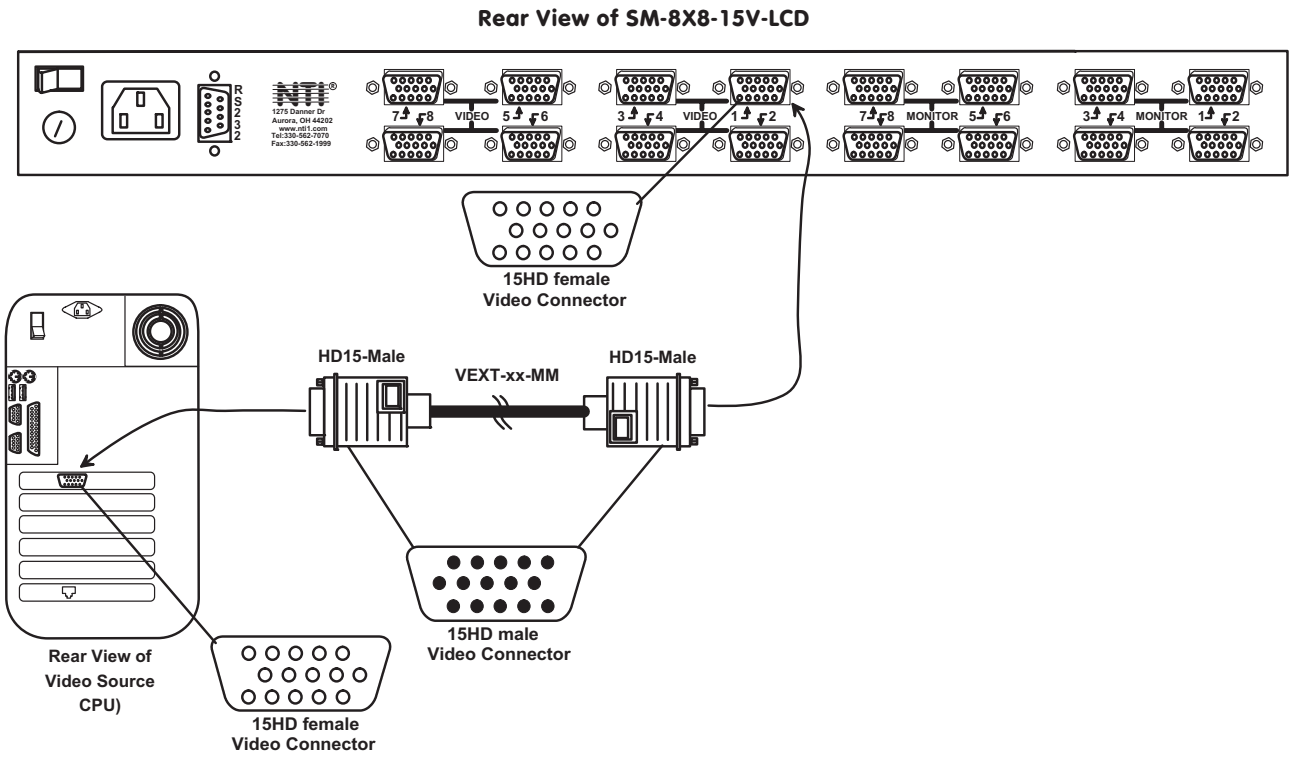


Figure 1- Install Video Source Cables

4. Connect a monitor to the 15HD female connector labeled MONITOR 1 on the rear of the VEEMUX (See Fig. 2).
5. Connect additional monitors to remaining 15HD female MONITOR x connectors as desired.

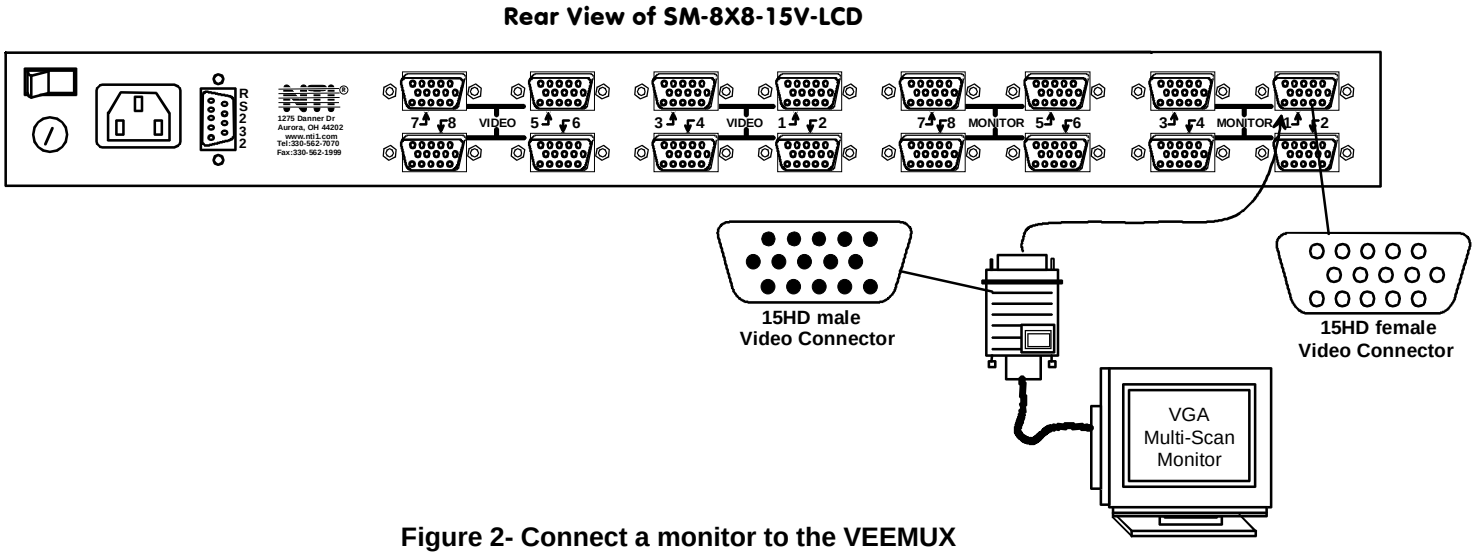


Figure 2- Connect a monitor to the VEEMUX

Connect RS232

RS232 control can be achieved using a separate user terminal or CPU with a terminal program.
To make a terminal connection, connect a null modem cable (specifications on page 16) between the user terminal and the 9 pin DIN female connector on the VEEMUX labeled "RS232". (See Fig. 3)

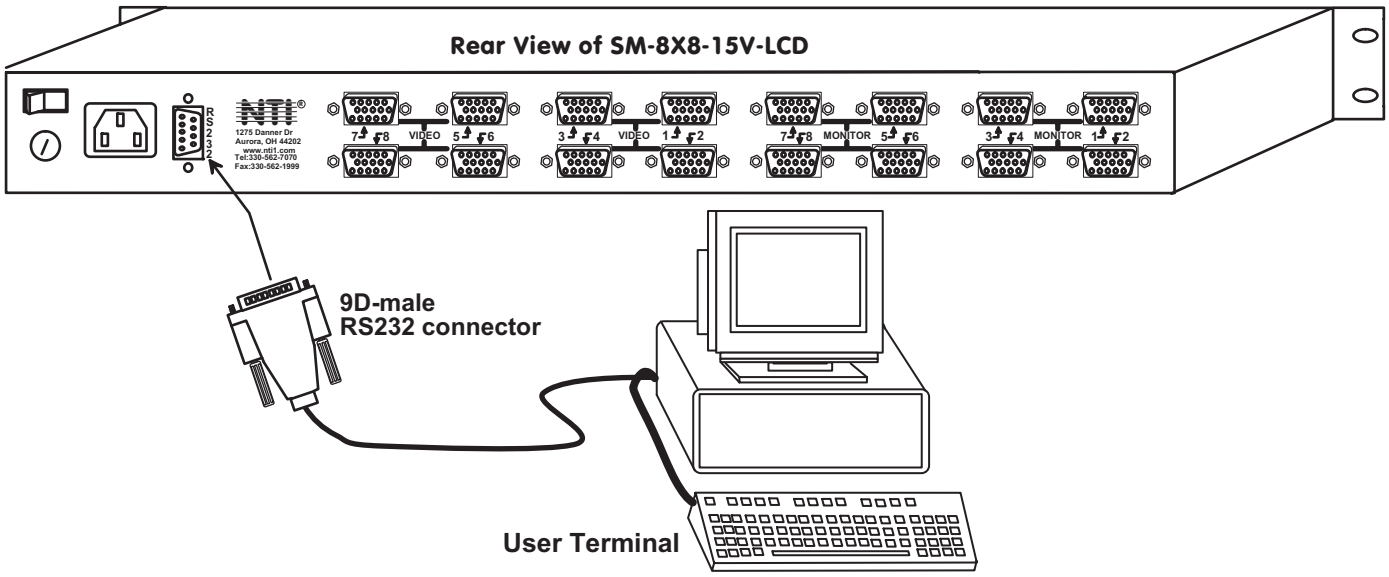


Figure 3- Connect user terminal for RS232 control

Power Up

1. Plug the VEEMUX into an AC power outlet.
2. Turn ON power to the VEEMUX.
3. Turn ON power to the video sources and monitors connected to the VEEMUX.

CONTROL OPTIONS

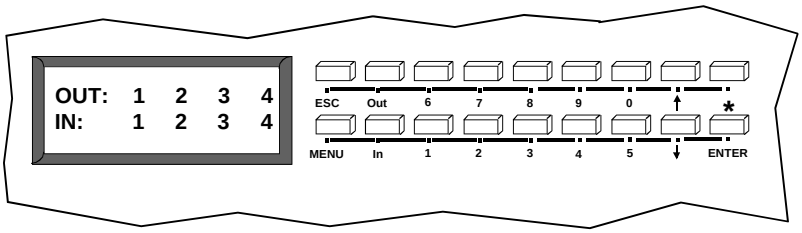
The VEEMUX video matrix switch has three methods of control:

- Front Panel LCD with Keypad
- Directly via an RS232 Interface
- Infrared Remote (optional).

Every unit comes standard with the Front Panel LCD with 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 VEEMUX. No software is involved (see Infrared Control on page 11). 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 7 – RS232 Control).

Front Panel LCD with Keypad Control

The front panel LCD and keypad allow the user to monitor switch status and route any user to any video source on the switch. When the unit is powered up, each monitor is automatically connected to the video source of its equal number (i.e. monitor 1 to source 1, monitor 2 to source 2, monitor 3 to source 3, etc.). Along with the routing of the inputs (video sources) to the outputs (monitors) the keypad and LCD allow the users to 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 The output user number can be entered (2 digits or 1 digit and ENTER or IN) followed by the input

IN Used following single digit output entries

ENTER Used following single digit entries

▲ Display next 4 outputs and their inputs

▼ Display previous 4 outputs and their inputs

MENU The RS-232 menu is displayed. This allows the baud rate to be set at 9600, 2400, 1200 or 300 baud and the unit address to be set to 1 - 15. See RS-232 control later in this chapter.

* Activate Memory Function - 10 memory locations 0 – 9, 0 is the power on default.

to Save current connections (*) (OUT) (#) (ENTER)

to Recall connections from (*) (IN) (#) (ENTER)

To set all outputs to one input (*) + (#) + (ENTER)

The following examples show various method of routing output 3 to input 5. Inputs and Outputs can be entered as a two digit number or a one digit number followed by IN or ENTER.

(OUT) 3 (IN) 5 (ENTER)
(OUT) 3 (ENTER) 5 (ENTER
(OUT) 03 05
03 05

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 Connector (DB-9 FEMALE)

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

On the DB-9 female connector, pins 4 (DSR) and 6 (DTR) are shorted and pins 7 (CTS) and 8 (RTS) 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 4). For a pinout of the Matrix-Y-1 cable, see page 17. For straight through cable pinouts applicable to various terminal types, see page 16.

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 can be changed by pressing the MENU button on the front panel keypad. Then select 1 for SET BAUD RATE and select the desired baud rate of 9600, 2400, 1200 or 300. A data protocol of 8 data bits, no parity, and 1 stop bit is used for communications.

Unit Address

To allow multiple units to be controlled from a single CPU 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. To set the unit address select MENU on the front panel keypad. Then select 2 for SET UNIT ADDRESS and then type the address number (1-15) and (ENTER).

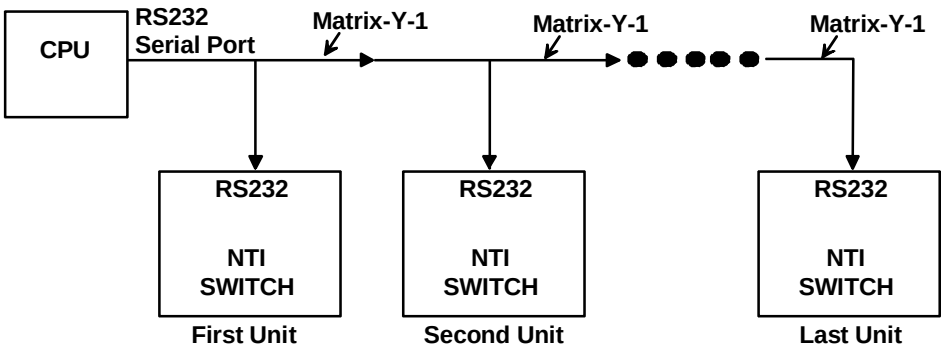


Figure 4- RS232 connection with Matrix-Y-1 cable

Command Protocol

CPU 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 CPU 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: 1 = 01).

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

Legend:
(All numbers must be two digits)

SW	:	Switch (01-15)	MM	:	Save Into Memory Bank (00-09)
BR	:	Baud Rate Code (12,24,48,96)	LL	:	Load From Memory Bank (00-09)
OP	:	Output Port (01-MAXOUTPUTS)	<CR>	:	Carriage Return (Hex 0xD)
IP	:	Input Port (01-MAXINPUTS)			

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
CC SW,MM	*<CR>MM<CR>	Save Matrix Connections Into Memory Bank xx Xx=00-09
RC SW,LL	*<CR>LL<CR>	Restore Matrix Connections From Memory Bank
CB 00,BR	None	***Change baud rate of serial line, BR=12(00),24(00),48(00),96(00)*** Factory default is 9,600
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

If the first field is not a known command (as listed above) or SW field is different from the serial address programmed in the switch memory, the command will be ignored. If the SW field corresponds to the serial address, but the syntax is wrong after this field, the switch will answer with ?<CR>.

Matrix Switcher's Control Program For Windows 9X, NT, AND 2000

The Matrix Switcher's Control Program is an easy and powerful graphical program that controls NTI matrix switches through an RS232 interface. The Matrix Switcher's Control Program is included on the CD packaged with the VEEMUX. The Matrix Switcher's Control Program is downloaded by clicking on the link "Download Matrix Switcher's Control Program".

To install the Matrix Switcher's Control Program after downloading

1. Locate the ***Setup.exe*** in the directory the program was downloaded to and double-click on it
2. Follow the instructions on the screen

The Matrix Switcher's Control Program performs best on monitors set to a screen resolution of at least 800 X 600. Instruction for using the Matrix Switcher's Control Program is available by opening "MSCP Help" in the "NTI" program group once the program has been installed and is open on the screen.

To open "MSCP Help" from the Windows desktop

1. Click on **START**
2. Click on **PROGRAMS**
3. Click on **NTI**
4. Click on **MSCP Help**

SerTest- 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 program SERTEST along with the Matrix Switcher's Control Program (see page 9) is installed from the 3-1/4" floppy disc packaged with this switch. SERTEST generates a main menu with the 3 selections described below:

Main Options

- Matrix Operations - send commands to the matrix unit.
- Ethernet Operations - set ethernet connection variables (not applicable in this model)
- Setup Options - set COM port, baud rate, and unit address
- Quit - quit the program

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

Matrix Operations

1) Reset Unit (1)
   - send a reset command to the switch
   - the current unit address is displayed in parentheses

2) Reset All Units
   - send an internal reset command to all switches

3) Connect Video Output/User to an Input/CPU
   - connect an output to an input

4) Connect All Video Outputs/Users to an Input/CPU
   - connect all outputs to an input

5) Read Connection for Video Output/User
   - read what input is connected to the specified output

6) Read Unit Size
   -read the switch size (number of inputs and outputs)

7) Read Unit Version/Revision String
   -read a string containing the switch version, type, and size

8) Save I/O Connections into Unit Memory
   -save the connections into switch memory bank

9) Restore I/O Connections from Unit Memory
   -restore the connections from switch memory bank

10) Save All Units I/O Connections into Units Memory
   -save the connections into switch memory bank, command for all switches

11) Restore All Units I/O Connections from Units Memory
   -restore the connections from switch memory bank, command for all switches

12) 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

Setup 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) (not applicable to this model)
   - select the unit address
   - 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.

Press <Esc> or <Enter> to back out to the main menu and press again to exit.

INFRARED CONTROL

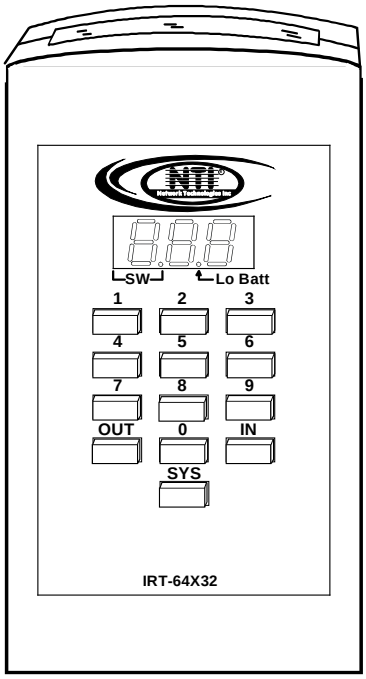
(Optional)

The IRT-64X32 (or IRT) is an infrared remote transmitter that enables the user to control up to four (4) NTI VEEMUX Video Matrix switches via an infrared receiver from up to 50 feet away (with an unobstructed view). The IRT is battery-powered and always ready to use. The IRT will have a blank display unless an action is being selected by the user. The IRT enables the user to make connections between any input (video source) and any output (display device) on up to four (4) separate switches.

Note: Multiple switches that are located close to each other and are to be individually controlled must be pre-configured (by NTI) to be identified by the IRT as switches #1, #2, #3, or #4. Please ask your salesperson to have switches configured accordingly at time of order. Unless otherwise specified, by default, all IRT-enabled switches will be configured as switch #1.

Materials included:

- IRT-64X32 Infrared Remote Transmitter for video matrix switches
- (2) AA Cell Batteries- installed



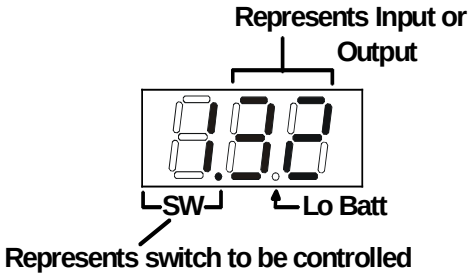
Features And Functions

Keypad

- Buttons Numbered 0-9 – Used for port selection
- OUT – Pressed to validate and transmit the Output selection
- IN – Pressed to validate and transmit the Input selection
- SYS – Pressed to choose the switch to be controlled or to configure the maximum number of inputs/outputs

LCD Display

- The first digit of the LCD will display the number of the switch to be controlled followed by the decimal point. This way the user will always know which switch will be effected by the IRT.
- The last two digits in the LCD represent 1) the desired input or output port to be connected or 2) the desired switch to be controlled when changing switches.
- The "Lo Batt" decimal point will illuminate when the user should change the batteries.
- The LCD will automatically power-down after 30 seconds of non-use and power-up with the press of any button.



How To Use The IRT

The IRT-64X32 enables the user to control the connections of up to 32 input ports and 16 output ports on up to four (4) separate NTI video matrix switches. When any key is pressed, the IRT will power ON. A number key should always be pressed first unless a change to the configuration is desired (see "Set Configuration" on page 14). When a number key is pressed the LCD will display that number blinking. What to press next depends on what action is desired;

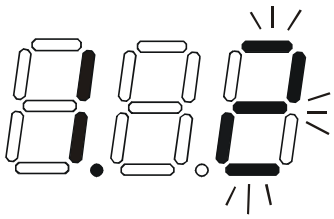
- change the switch to be controlled
- change the output port
- change the input port

Note: The user must always change or confirm the output port first and the input port second

If the "SYS", "IN" or "OUT" key is pressed first, the LCD will display the current switch followed by the decimal point and an error signal "EE". The error signal will display because there is no number to be displayed. A number key must always be pressed before a "SYS", "IN" or "OUT" key is pressed.

Exception: The "SYS" key is pressed first when setting the configuration. (See page 24)

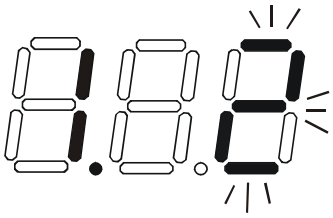
Power ON with SYS, IN or OUT keys



Power ON with "2" key

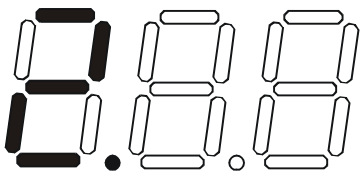
Change the Switch

Press the number of the switch to be controlled. The number selected will be blinking in the last digit.



FYI: If the user realizes that an invalid number has been introduced before pressing either the "SYS", "IN", or "OUT" buttons, a correction can be made by pressing the correct number. If the correct number is a single digit, it must be preceded by a "0" to make the correction.

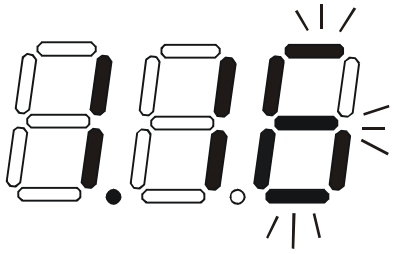
Press the "SYS" key. The blinking number will become blank and the switch number will update.



Note: If the number entered is larger than 4, when the "SYS" key is pressed the LCD will display the current switch and the error signal "EE".

Change Output Port

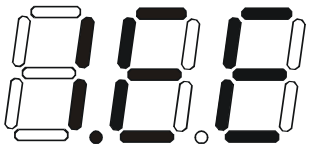
Press the desired port number. If there is no change in the desired output port, the output port must still be selected. As the digits are selected, the last number entered will blink. The LCD will also display the current switch number followed by the decimal point.



With the desired port number selected, point the IRT at the switch/receiver and press the "OUT" button to transmit the selection and make the change. The blinking number in the LCD will stop blinking. An LED on the receiver will illuminate.

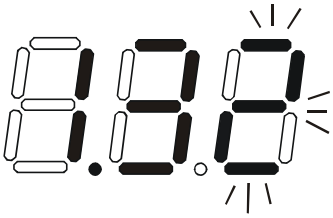
FYI: If the switch did not receive the data the LED will not illuminate. The user can re-send the same data by pressing the "OUT" button again. The LED at the receiver will illuminate to indicate a completed transmission from the IRT..

Note: If the number introduced is larger than the maximum number of outputs the IRT is configured for, then once the "OUT" key is pressed the LCD will display the current switch and the error signal "EE".



Change Input Port

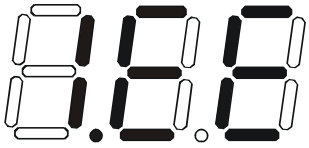
Press the desired port number. As the digits are selected, the last number entered will blink. The LCD will also display the current switch number followed by the decimal point.



With the desired port number selected, point the IRT at the switch/receiver and press the "IN" button to transmit the selection and make the change. The blinking number in the LCD will stop blinking. The LED at the receiver will go OFF.

FYI: If the switch did not receive the data the LED will not go OFF. The user can re-send the same data by pressing the "IN" button again. The illuminated LED on the receiver will go OFF when the received data is complete.

Note: If the number introduced is larger than the maximum number of inputs that the IRT is configured to control, then once the "IN" key is pressed the LCD will display the current switch and the error signal "EE".

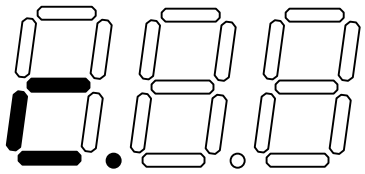


Set Configuration

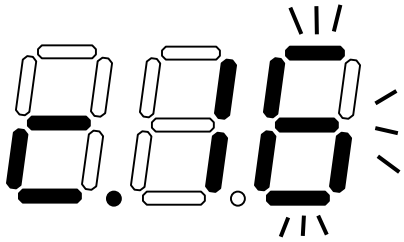
The IRT-64x32 factory default setting is 32 inputs and 16 outputs. When the batteries are changed the setting will return to the default value. At the default setting the IRT has the ability control any matrix switch with up to 32 inputs and 16 outputs without changing the configuration. However, when controlling smaller switches without changing the configuration it is up to the user to press valid number(s). To avoid confusion, it is recommended to configure the IRT to communicate with the largest switch to be controlled.

To change the maximum number of inputs or outputs:

1. From power-down state (blank LCD) press and hold the "SYS" button for at least 3 seconds. The LCD will first display an error message but after 3 seconds the letter "c" will display:

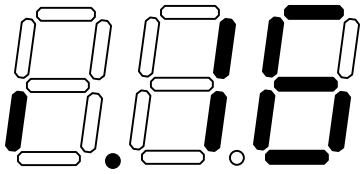


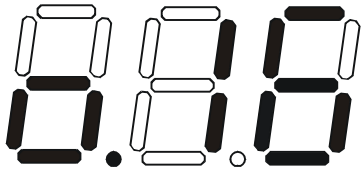
2. Enter the number of inputs or outputs. As the digits are entered, they will be displayed and the last one entered will blink.



Note: Only the inputs OR the outputs may be configured each time the configuration function is used. To perform another configuration operation the user must start again at "Set Configuration" step 1.

3. Accept the choice by pressing the "IN" button for setting inputs, or the "OUT" button for setting the outputs. The LCD will not blink anymore and will display “i” (for inputs) or "o" (for outputs) and the number.





Notes:

- ***The maximum number of inputs and outputs that can be entered is 32 and 16 respectively. If the user introduces a number larger, the display will show an error signal ("c.EE") and the maximum number will remain at the last valid value configured.***

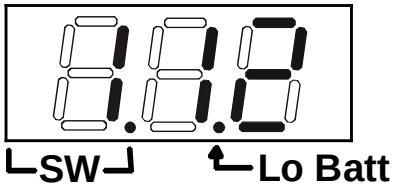
- ***If more than one switch is being controlled, the IRT should be configured for the largest switch. It is up to the user to introduce valid numbers to the smaller switches when making selections.***

Battery Replacement

The IRT has a low-battery indicator to let the user know when it is time to change the batteries. The right-hand decimal point in the LCD display will illuminate (see illustration below). This will stay illuminated while the IRT is in use until the batteries are changed or the battery charge is too low for the IRT to operate.

To Change The Batteries:

1. Remove slide cover on rear of unit.
2. Remove old batteries carefully.
3. Insert (2) new “AA” cell batteries.
4. Replace slide cover on unit.
5. Reset the configuration if a range other than the default setting is desired.



Specifications

- 50 feet maximum operating range between the transmitter and the front of the NTI switch / infrared receiver.

Note: Line of sight between IRT and receiver must be unobstructed.

- Select up to 16 outputs
- Select up to 32 inputs
- Operates with (2) “AA” batteries.
- "Lo Batt" decimal point in LCD will illuminate to indicate a low battery when the battery voltage drops to approximately 2.25 volts.

Troubleshooting

PROBLEM	SOLUTION
IRT is not selecting output	• Check battery • Make sure you are using the correct IRT for the switch. (Check model number on the front of the IRT.) • The IRT may be configured to control the wrong switch or the wrong size of switch (see "Set Configuration" on page 14)
IRT is not selecting input	• Check battery • The IRT may be configured to control the wrong switch or the wrong size of switch (see "Set Configuration" on page 14)

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-A 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.***

RS232 CONNECTION CABLES

Pinout of RS232 port on VEEMUX

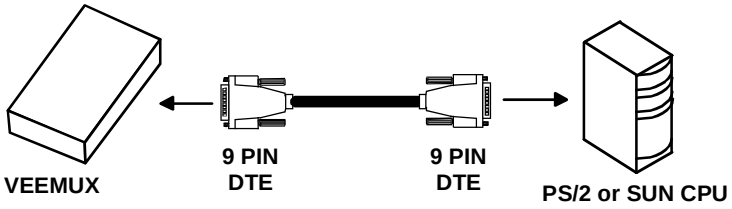
The VEEMUX RS232 serial port is a DB-9F (female) connector configured as a DCE (data communication equipment) port. The RS232 port interface signals are listed below, including equivalent CCITT V.24 identification, and signal direction:

DB-9F pin #	Common name	EIA name	CCITT name	Function	Direction
1	N/a	N/a	N/a	No connection	--
2	TxD	BA	103	Transmit Data	Output
3	RxD	BB	104	Receive Data	Input
4	DSR	CC	107	Data Set Ready	Input
5	SG	AB	102	Signal Ground	–
6	DTR	CD	108.2	Data Terminal Ready	Output
7	CTS	CB	106	Clear To Send	Input
8	RTS	CA	105	Request To Send	Output
9	N/a	N/a	N/a	No connection	--

Pinouts for typical DCE to DTE cable for CPU connection

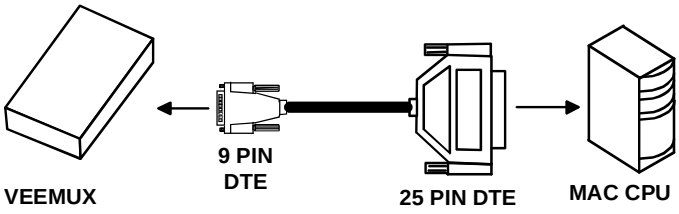
VEEMUX (DCE) to 9 PIN DTE (PS2 or SUN)

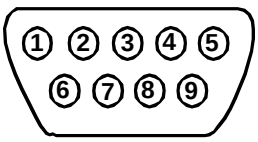
VEEMUX			PS/2 or SUN CPU	
9 pin		Signal Direction	9 pin	
Function	Pin #		Pin #	Function
RxD	3	←	3	TxD
TxD	2	→	2	RxD
CTS	7	←	7	RTS
RTS	8	→	8	CTS
DSR	4	←	4	DTR
DTR	6	→	6	DSR
SG	5	—	5	SG



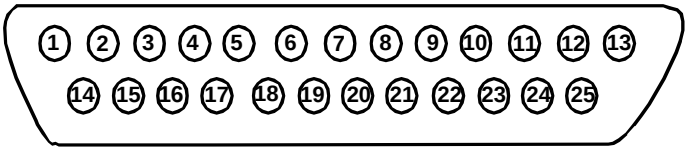
VEEMUX (DCE) to 25 PIN DTE (MAC)

VEEMUX			MAC CPU	
9 pin		Signal Direction	25 pin	
Function	Pin #		Pin #	Function
RxD	3	←	2	TxD
TxD	2	→	3	RxD
CTS	7	←	4	RTS
RTS	8	→	5	CTS
DSR	4	←	20	DTR
DTR	6	→	6	DSR
SG	5	—	7	SG





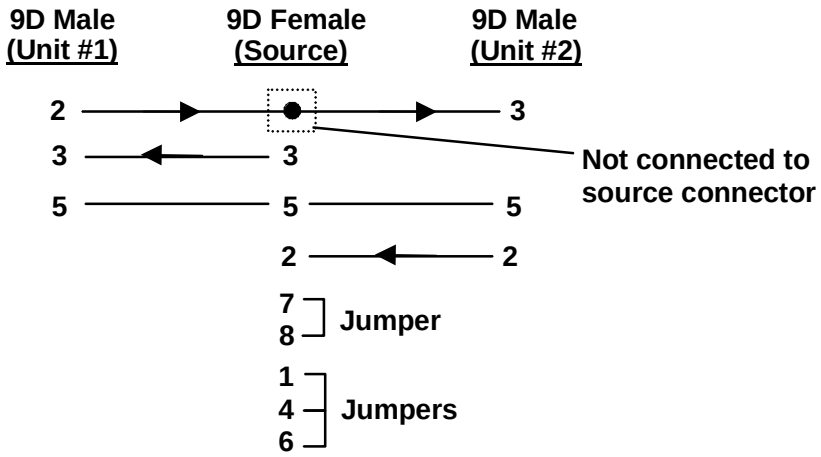
Mating Face of a 9D Male



Mating Face of DB25 Male

Pinout for Matrix Y-1 Cable

Wiring Schematic of Matrix-Y-1 cable



Arrows indicate signal direction.

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

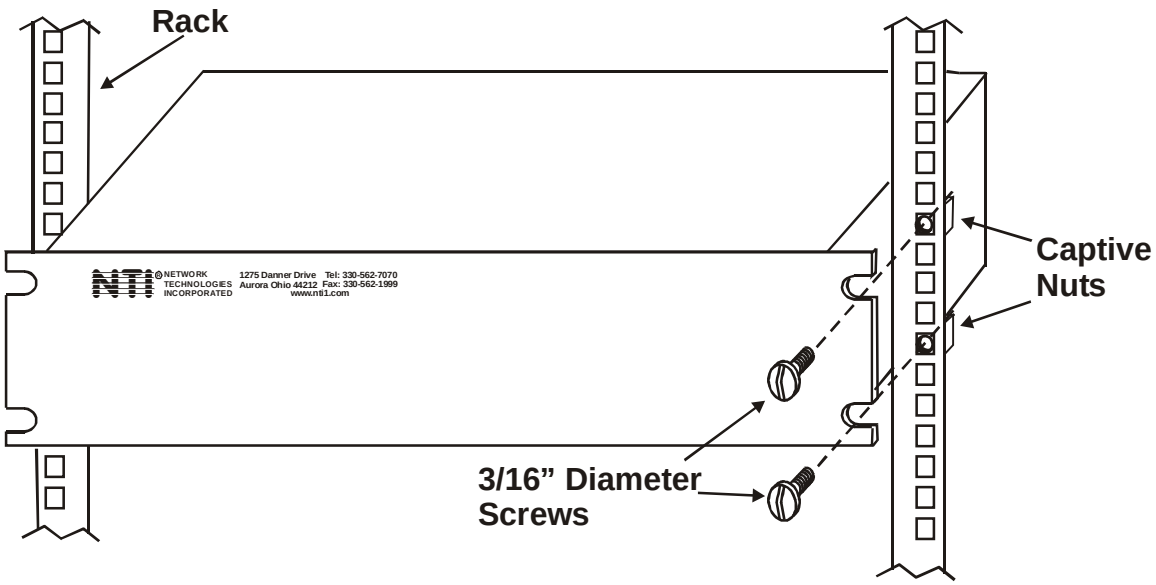
NTI products are not intended to be serviced in the field and contain no user-serviceable parts. In the event repair is needed, all servicing must be performed by factory trained and authorized service personnel. Only those items specifically identified in this manual (if any) may be adjusted by the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



SPECIFICATIONS

General Information

DESCRIPTION	SPECIFICATION
Operating temperature	-18°C - 55°C (0°F - 131°F) (17-90% non-condensing RH)
Storage temperature	-30°C - 60°C (-20°F-140°F) (17-90% non-condensing RH)
Power requirements	110 or 220VAC @ 50 or 60Hz
Video Connectors	15HD female
Maximum Resolution	1920 x 1200 @ 85Hz
Video Signal : Video Bandwidth Sync	RGB analog (75 ohms, 0.7 Vp-p) 200MHz (typ) or greater H/V separated (TTL), composite, sync-on-green
RS232 Connector	DB9 male, 300-9600 bps

Available Sizes

NTI Part #	Desktop Size (In.) WxDxH	Rack Units	Rack Size (In.) WxDxH
SM-4X2-15V-LCD	10x7.5x3.3	1RU	19x10x1.75
SM-8X2-15V-LCD	10x7.5x3.3	1RU	19x10x1.75
SM-16X2-15V-LCD	N/A	1RU	19x10x1.75
SM-32X2-15V-LCD		2RU	19x10x3.5
SM-4X4-15V-LCD	10x7.5x3.3	1RU	19x10x1.75
SM-8X4-15V-LCD	10x7.5x3.3	1RU	19x10x1.75
SM-16X4-15V-LCD	N/A	1RU	19x10x1.75
SM-32X4-15V-LCD		2RU	19x10x3.5
SM-8X8-15V-LCD		1RU	19x10x1.75
SM-16X8-15V-LCD		2RU	19x10x3.5
SM-32X8-15V-LCD		2RU	19x12x3.5
SM-16X12-15V-LCD		2RU	19x12x3.5
SM-16X16-15V-LCD		2RU	19x12x3.5
SM-32X16-15V-LCD		3RU	19x12x5.25