Audio/Video Matrix Switch via CAT5 to 1,000 Ft (305 Meters)

VEEMUX®

How to route and distribute audio/video up to 1,000 feet using CAT5 cable instead of bulky coax cables

- Configure and control the switch through Ethernet, serial port, front panel buttons, or Infrared remote control.
- Matrix Control Software with Graphical User Interface is included.
- Supports resolutions up to 2048x1536 using NTI's 1,000' (305 meters) extenders and 1920x1440 using NTI's 600' (183 meters) extenders.
- Inputs and outputs can be named.
- Video quality adjustment is done automatically at every connection change, or can be forced via the front panel or web interface.
- Equipped with Liquid Crystal Display (LCD) for front panel operation.
- A digital VU-meter shows the audio levels of the selected input.
- Each output provides one video signal and one stereo audio signal.
- Each input can be independently connected to any or all outputs with no image degradation.
- No loss of audio or video quality between the transmitters and receivers.
- VGA, S-Video and HDTV transmitters and receivers can be supported on the same VEEMUX unit.
  - VGA inputs only work with VGA outputs, S-Video inputs only work with S-Video outputs, and HDTV component video inputs only work with HDTV component video outputs.
  - The 1,000' transmitters only work with 1,000' (305 meters) receivers, and 600' (183 meters) transmitters only work with 600' (183 meters) receivers.
    - The maximum extension is 600 feet (183 meters) between the transmitter and receiver.
    - For resolutions at different lengths, refer to the 600' (183 meters) extender resolution chart.
    - The VGA video from units with audio and/or RS232 can be routed to each other and to video-only units.

VEEMUX® SM-16X64-C5AV-1000 (Front & Back)

DIGITAL SIGNAGE

- **Supports Resolutions up to 2048x1536**
- **Compatible with NTI's 600' and 1000' Extenders**
- **Supports Touch Screen Monitors**

The VEEMUX® Audio/Video Matrix Switch routes audio and video inputs from many video sources to multiple displays (projectors, monitors, etc.) and speakers via inexpensive CAT5/5e/6 cable. It is capable of connecting to as many as 64 video sources via transmitters and 64 video displays via receivers with a maximum extension of 1,000 feet between the transmitters and receivers. In addition to the remote inputs/outputs, the switch features one direct-connect VGA and stereo audio input/output for every 16 remote RJ45 connectors.

Specifications

Direct-Connect Video Input/Output

- Female 15-pin HD connectors
  - One direct-connect input connector for every 16 RJ45 connectors.
    - Use the DIP switch to select between the direct-connect input or remote RJ45 input for port 16, 32, 48 and 64.
  - One direct-connect output connector for every 16 RJ45 connectors.
    - Splits signal with corresponding remote output (ports 16, 32, 48 and 64)
- 1920x1200 video resolution with no degradation.
- Impedance: 100 Ohms

Direct-Connect Audio Input/Output

- 3.5mm stereo audio jacks
  - One direct-connect input connector for every 16 RJ45 connectors.
    - Use the DIP switch to select between the direct-connect input or remote RJ45 input for port 16, 32, 48 and 64.
  - One direct-connect output connector for every 16 RJ45 connectors.
    - Splits signal with corresponding remote output (ports 16, 32, 48 and 64)
- Drives 8-Ohm speakers.
- Unbalanced gain: user defined.
- Frequency response: 20 Hz to 20 kHz, +/-0.5 dB.
- Total harmonic distortion + noise: 0.01% at 1kHz.
- 200 mW RMS of continuous power per output.
- When switching ports, audio mutes until video has been synchronized.

Remote Audio/Video Input/Output

- Female RJ45 input/output connectors for connecting transmitters and receivers.
- Compatible transmitters and receivers:
  - VGA Extenders to 1,000 feet (305 meters)
    - Supports resolutions up to 2048x1536.
    - Available options: two-way audio (support for speakers and microphone), RS232, two-way audio + RS232.
  - VGA + Audio Extender to 600 feet (183 meters)
    - Supports resolutions up to 1920x1440.
  - HDTV Component Video + Stereo Audio Extender to 600 feet (183 meters)
    - Supports HDTV resolutions up to 1080p.
  - S-Video + Stereo Audio Extender to 600 feet (183 meters)
    - Supports maximum 800x600 S-Video resolution.

Bandwidth

Analog Bandwidth, Fully Loaded	
Model	**Mhz**
16x16	175
16x48	117
16x32	141
16x64	99
32x64	99
64x64	99

NTI® NETWORK TECHNOLOGIES INCORPORATED
1.800.RGB.TECH (800.742.8324) Toll Free: US & Canada
330.562.7070 International calls
330.562.1999 Worldwide fax
sales@ntigo.com
www.networktechinc.com

© 2011, 2014 NTI. All rights reserved.

How to route and distribute audio/video up to 1,000 feet using CAT5 cable instead of bulky coax cables

Specifications (Continued)

Protocols

- HTTP, HTTPS
- TCP/IP, DHCP, UDP, ARP
- IPV4

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector. (Country-specific power supply cable included.)

Environmental

- Operating temperature: 32°F to 100°F (0°C to 38°C).
- Storage temperature: -20°F to 140°F (-30°C to 60°C).
- Operating and Storage Relative Humidity: 17 to 90% non-condensing RH.

Regulatory Approvals

- CE, RoHS

Cables

- Interface cables between the video sources and the switch are required for proper operation.
- Recommended NTI cables for direct-connect input/outputs:
  - VGA cable (VEXT-xx-MM).
  - Stereo audio cable (SA-xx-MM)
- Use CAT5, CAT5e or CAT6 solid straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors.
- Cables not included.

Control Methods

Front Panel Interface

- Configuration and control can be done using the front panel buttons.
- Liquid Crystal Display (LCD) can display all current connections.
- Digital VU-Meter displays audio levels for the currently selected port.

RS232 Control

- Configuration and control can be done through the serial port.
  - Female RJ45 connector or female USB Type B connector.
- Control the switch using the NTI Switch Control Program with Graphical User Interface (GUI control) via RS232
- Selectable baud rate: 4800 through 115200.
  - Baud rate is set via the main menu, serial command, telnet or web page.

Matrix Control Software

- Intuitive graphical software provides fast switch control of multiple matrix switches using an RS232 connection.
- Supports Microsoft Windows® 95/98/NT/ME/2000/XP/Vista/7.
- Control switches with simple drag-n-drop interfaces.
- Save and load feature allows frequently used matrix switch configurations to be recalled with the click of a button.

IR Remote Control

- Control can be done using the included IR remote control.
- Transmitter can be up to 30 feet (9.1 meters) away.
- Control up to 15 switches with one remote.
- Power: Two AAA batteries (included).

Ethernet Control

- Configuration can be done over the Internet via web page or telnet.
- Female RJ45 connector.
- 10/100 BaseT Ethernet interface.

Web Server

- Security is ensured by password and user configurable timeout.
- Up to 25 users can access the web page at one time.
- The user can access the following pages:
  - Switch page: allows the user to connect any input to any output, save and recall up to ten connections.
  - Administration pages: administrator can access setup pages, port setting page and update firmware page. Assign names to video and audio inputs and outputs.
  - Password page: allows the user to change the password for accessing the web interface.
  - Help page: review documentation on the usage of the web interface.
  - Update web server page: globally update the web server to any settings that have been changed.
  - Logout page: view currently active connections and logout of the web interface.

Telnet

- Security is ensured by password.
- Commands are similar to RS232 commands.
- The telnet server listens on ports 2000 and 2005.
  - Port 2000 is for an operator telnet session.
  - Port 2005 is intended for a software control type session.

© 2011, 2014 NTI. All rights reserved.

Audio/Video Matrix Switch via CAT5 to 1,000 Ft (305 Meters)

VEEMUX®

Route and distribute audio/video up to 1,000 feet (305 meters) using CAT5 cable instead of bulky coax cables

VGA Extenders to 1,000 feet (305 meters) Distances and Resolutions for CAT5/Cat5e and CAT6 Cables

Cable	Distance	Resolution
CAT5/CAT5e (UTP)	1000 ft (305 m)	1920x1200 at 60Hz
	800 ft (244 m)	1920x1440 at 60Hz
	600 ft (183 m)	2048x1536 at 60Hz
CAT6 (UTP)	800 ft (244 m)	1920x1440 at 60Hz
	600 ft (183 m)	2048x1536 at 60Hz
CAT5/5e (STP)	800 ft (244 m)	1920x1200 at 60Hz
	600 ft (183 m)	1920x1440 at 60Hz
	400 ft (122 m)	2048x1536 at 60Hz
CAT6 (STP)	400 ft (122 m)	1280x1024 at 60Hz
	300 ft (91 m)	1600x1200 at 60Hz
	200 ft (61 m)	2048x1536 at 60Hz

VGA + Audio Extender to 600 feet (183 meters) Distances and Resolutions for CAT5/Cat5e and CAT6 Cables

Cable	Distance	Maximum Resolution
CAT5/CAT5e (UTP)	600 ft (183 m)	1024x768 at 60Hz
	400 ft (122 m)	1280x1024 at 60Hz
	300 ft (91 m)	1600x1200 at 60Hz
	100 ft (30 m)	1920x1440 at 60Hz
CAT5/5e (STP), CAT6 (UTP)	300 ft (91 m)	1024x768 at 60Hz
	200 ft (61 m)	1280x1024 at 60Hz
	100 ft (30 m)	1920x1440 at 60Hz

CAT5 A/V Matrix Switch Models

NTI Part #	# of Remote Inputs	# of Remote Outputs	# of Direct-Connect Inputs	# of Direct-Connect Outputs	Rack Units	Size WxDxH
SM-16X16-C5AV-1000	16	16	1	1	1RU	19x12.08x1.75 in (483x307x45 mm)
SM-16X32-C5AV-1000	16	32	1	2	2RU	19x16.08x3.5 in (483x408x89 mm)
SM-16X48-C5AV-1000	16	48	1	3	2RU	19x20.08x3.5 in (483x510x89 mm)
SM-16X64-C5AV-1000	16	64	1	4	3RU	19x24.08x5.25 in (483x612x133 mm)
SM-32X64-C5AV-1000	32	64	2	4	4RU	19x24.08x7 in (483x612x178 mm)
SM-64X16-C5AV-1000	64	16	4	1	3RU	19x24.08x5.25 in (483x612x133 mm)
SM-64X32-C5AV-1000	64	32	4	2	4RU	19x24.08x7 in (483x612x178 mm)
SM-64X64-C5AV-1000	64	64	4	4	5RU	19x24.11x8.75 in (483x612x222 mm)

Transmitters and Receivers to 1,000 feet (305 meters)

Supported Features	Transmitter NTI Part #	Receiver NTI Part #
VGA	ST-C5V-L-1000S	ST-C5V-R-1000S
VGA + two-way audio	ST-C5V2A-L-1000S	ST-C5V2A-R-1000S
VGA + RS232	ST-C5VRS-L-1000S	ST-C5VRS-R-1000S
VGA + two-way audio + RS232	ST-C5V2ARS-L-1000S	ST-C5V2ARS-R-1000S

Transmitters and Receivers to 600 feet

Supported Features	Transmitter NTI Part #	Receiver NTI Part #
VGA + audio	ST-C5VA-L-600	ST-C5VA-R-600
S-Video + audio	ST-C5SVA-L-600	ST-C5SVA-R-600
HDTV + stereo audio	ST-C5CMPSA-L-600	ST-C5CMPSA-R-600

NETWORK TECHNOLOGIES INCORPORATED
1.800.RGB.TECH (800.742.8324) Toll Free: US & Canada
330.562.7070 International calls
330.562.1999 Worldwide fax
sales@ntigo.com
www.networktechinc.com

© 2011, 2014 NTI. All rights reserved.