NETWORK TECHNOLOGIES INCORPORATED

INNOVATORS IN QUALITY KVM & A/V SOLUTIONS

2010 Product Guide

www.networktechinc.com

ABOUT NTI

Exceptional Quality • Reliable Performance • Innovative Technology

Company Overview

Founded in 1984, Network Technologies Inc is a leading global provider of high quality IT infrastructure management solutions. NTI provides easy-to-use KVM and audio/video solutions that improve efficiency, reduce costs, and maximize space. The company designs, manufacturers, and tests its own products, and provides friendly technical and sales support in Aurora OH, USA.

NTI products are used worldwide by leading companies in every industry, including manufacturing, retail, government, education, healthcare, financial services, entertainment, worship, broadcast, and telecommunications.

NTI rapidly introduces new products with state of the art technology to meet the ever-changing market demands. Most new products use an embedded Linux Operating System. Lower cost solutions are constantly being evaluated to determine how to best meet customer needs.

About NTI Products

NTI products are easy-to-use, hardware-based solutions that are compatible with commonly available software and drivers. Each product is rigorously tested to ensure long-lasting and proper operation. Tests include functionality, burn-in, temperature, impact, and power cycling. All products are backed by a two-year warranty on all parts and labor.

Environmental Policy

NTI is committed to being environmentally responsible, and as a result is constantly improving its products, packaging and work environment to be more "green" friendly. Some of NTI's commitments to protecting the environment include producing RoHS compliant products, reducing power consumption in new products, responsible printing, and recycling.

RoHS Compliance

NTI products are compliant with EU's RoHS Directive 2002/95/EC, which restricts the use of certain hazardous substances in electrical and electronic equipment.

Quality Policy

NTI is dedicated to delivering solutions that are of exceptional quality, reliable performance, and innovative technology. The company has implemented quality assurance systems and processes that are constantly being improved in order to meet or exceed customers' expectations for product quality, product performance, and timely delivery of products. Examples of the company's quality processes include using only the finest components, strict manufacturing and inventory management, properly training personnel, and keeping up with the latest in manufacturing technology.

Friendly, Responsive Customer Service & Technical Support

NTI provides complete support and the highest level of customer satisfaction to new and existing customers.

Ordering Information

Call us:
- USA & Canada: 800-RGB-TECH (800-742-8324)
- Worldwide calls: 1-330-562-7070

Fax:
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E-mail:
- sales@ntigo.com

Website:
- www.networktechinc.com
- Most products can be ordered at our website.

Payment Terms:
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- Net30, pending approved credit
- Wire Transfer
- Prepaid or COD

US Government Orders:
- We are an approved GSA supplier, contract #GS-35F-0512K.
- Visit www.networktechinc.com/gsa.html for details

International Orders:
- Contact one of our international distributors or contact us direct; see the inside back cover or go to www.networktechinc.com/intldist.html for an up-to-date list.

NTI's products are guaranteed to meet your quality standards

VGA EXTENDER

Extend a VGA monitor up to 600 feet away from a computer

Available Options:

- **300' or 600' extenders**
- **Audio**
- **RS232**
- **Dual output local unit – extend two remote units up to 600 feet**
- **Dual output remote unit – extend two monitors from one remote unit**

DIGITAL SIGNAGE

XTENDEX® ST-C5V-600 (Remote and Local unit)

Features & Applications

The XTENDEX® VGA Extender transmits VGA video up to 300/600 feet from a computer using CAT5/5e/6 cable. Each video extender consists of a local unit that connects to a computer and also supplies video to a local monitor, and a remote unit that connects to a monitor.

- Supports local and remote VGA monitors.
- Supports resolutions to 1920x1440.
- Available with optional stereo audio or RS232 control (ST-C5V-300 available with audio option only).
- Optional VESA mounting bracket is available for mounting the remote unit to the back of a flat panel monitor.

- Optional dual output local unit available – extend two remote units up to 600 feet.
  - Local VGA monitor not available on dual output local units.
- Optional dual output remote unit available – extend two monitors from one remote unit.
- Ideal solution for digital signage applications.

Specifications

Local Unit

Host Connection

- Supports a PC, SUN, MAC or NTI switch with VGA video.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- Male 15-pin HD connector for computer connection.
- Optional stereo audio support – 3.5mm stereo plug.
- Optional RS232 support – female 9-pin D connector (ST-C5V-600 only).
- ST-2C5V(A/RS)-L-600: female 15-pin HD connector for downloading DDC table for remote monitor.

Local Access

- Crisp and clear 1920x1440 video resolution.
- Female 15-pin HD connector for local VGA monitor.
- Optional stereo audio support – 3.5mm stereo jack.
- Optional RS232 support – male 9-pin D connector (ST-C5V-600 only).
- Local VGA monitor not available on dual output local units, ST-2C5V(A/RS)-L-600.

Remote Unit

- Supports resolutions to 1920x1440; refer to the resolution chart on page 5.
- Female 15-pin HD connector.
  - ST-C5V(A)X2-R-600: two female 15-pin HD connectors.
- Optional 3.5mm stereo audio connection.
- Optional male 9-pin D connector for RS232 (ST-C5V-600 only).

Dimensions

- WxDxH (in): 3.5x3.1x1.2

Regulatory Approvals

- CE, RoHS

Video Quality Adjustment

- See chart below for the method of adjusting video quality for different lengths of CAT5/5e/6 cable.

NTI Part #	Video Quality Adjustment	NTI Part #	Video Quality Adjustment
ST-C5V-600	Manual	ST-C5V-300	Manual
ST-C5VA-600	Automatic	ST-C5VA-300	Manual
ST-C5VRS-600	Automatic		

Power

- ST-C5V(A/RS)-600:
  - Local and remote unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- ST-C5V(A)-300:
  - Local unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
  - Remote unit: powered from local unit via CAT5/5e/6 cable.
- ST-2C5V(A/RS)-L-600:
  - Dual output local unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- ST-C5V(A)X2-R-600:
  - Dual output remote unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.

Configuration and Cable Illustration

Local VGA Monitor

PC SUN MAC

XTENDEX Local Unit

AC Adapter

AC Adapter

XTENDEX Remote Unit

Remote VGA Monitor

CAT5 Cable (Up to 600 feet)

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Extend a VGA monitor up to 600 feet away from a computer
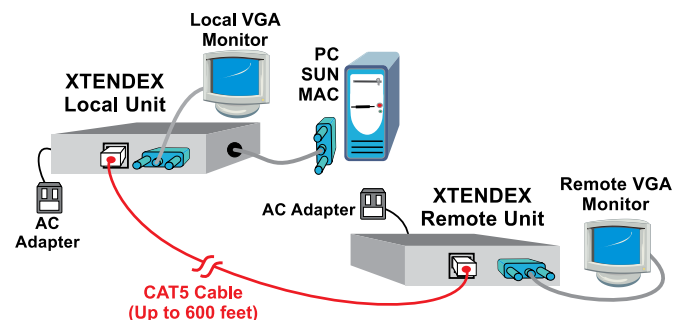
Options

Stereo Audio

- Available on ST-C5V-600 and ST-C5V-300.
- Stereo audio can be heard both locally and remotely.
- Frequency response: 20 Hz to 20 kHz, ±1 dB.
- Signal-to-Noise Ratio (SNR): >72 dBA.
- Total Harmonic Distortion and Noise (THD+N): <0.06%.
- Stereo crosstalk: -70 dB.
- Input impedance: 10k Ohms.
- Maximum I/O levels: 3.1Vp-p (line level).
- Requires powered speakers.
- CD quality audio output.

RS232

- Available on ST-C5V-600.
- Supports TXD, RXD, DTR, DSR, CTS and RTS.
- Baud rate up to 56K.
- Support for a touch screen monitor.

VESA Mounting Bracket

- Use to mount the remote unit to the back of a flat panel monitor.
- Compliant to VESA 75mm and 100mm mounting hole patterns.
- Dimensions WxH (in): 9.7x4.8

Remote unit mounted to the back of a flat panel monitor using ST-C5MK-VESA mounting kit

Resolutions for ST-C5V-600

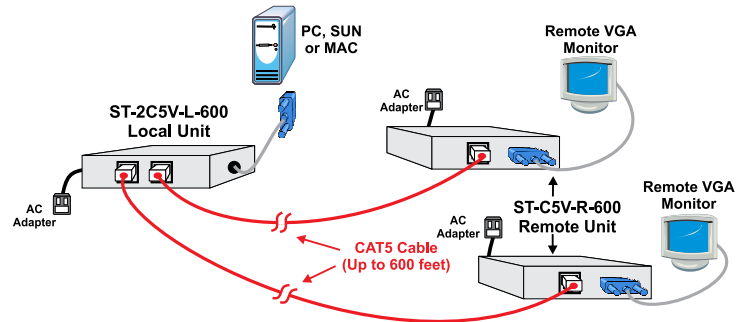| Cable	Distance (ft)	Resolution
CAT5/CAT5e Solid UTP	600	1024x768 at 60Hz
	400	1280x1024 at 60Hz
	300	1600x1200 at 60Hz
	100	1920x1440 at 60Hz
CAT5/5e Solid STP, CAT6 Solid UTP	300	1024x768 at 60Hz
	200	1280x1024 at 60Hz
	100	1920x1440 at 60Hz

Resolutions for ST-C5V-300

Cable	Distance (ft)	Resolution
CAT5/CAT5e Solid UTP	300	1280x1024 at 60Hz
	150	1600x1200 at 60Hz
	100	1920x1440 at 60Hz
CAT5/5e Solid STP, CAT6 Solid UTP	300	1024x768 at 60Hz
	150	1280x1024 at 60Hz
	100	1600x1200 at 60Hz

Cables

- Use CAT5, CAT5e or CAT6 solid straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors.
- Cables not included.

Dual Output Local Unit

- Two RJ45 connectors for connecting two remote units.
  - The monitors connected to each remote unit simultaneously display the same image.
- Features push button for downloading DDC data from monitor connected to VGA connector.

Configuration and Cable Illustration of ST-2C5V-L-600 and ST-C5V-R-600

Dual Output Remote Unit

- Two female 15-pin HD connectors for connecting two monitors.
  - Both remote monitors simultaneously display the same image.
- Optional audio allows connection of two sets of speakers.
  - Two 3.5mm stereo jacks.

Configuration and Cable Illustration of ST-C5V-L-600 and ST-C5VX2-R-600

VGA Extender to 600 Feet Models

Supported Features	Local or Remote	# of Ports	NTI Part #
VGA	Both	1	ST-C5V-600
VGA + Audio	Both	1	ST-C5VA-600
VGA + RS232	Both	1	ST-C5VRS-600
VGA	Local	2	ST-C5V-L-600
VGA + Audio	Local	2	ST-2C5VA-L-600
VGA + RS232	Local	2	ST-2C5VRS-L-600
VGA	Remote	1	ST-C5V-R-600
VGA + Audio	Remote	1	ST-C5VA-R-600
VGA + RS232	Remote	1	ST-C5VRS-R-600
VGA	Local	1	ST-C5V-L-600
VGA + Audio	Local	1	ST-C5VA-L-600
VGA	Remote	2	ST-C5VX2-R-600
VGA + Audio	Remote	2	ST-C5VAX2-R-600

VGA Extender to 300 Feet Models

Supported Features	Local or Remote	# of Ports	NTI Part #
VGA	Both	1	ST-C5V-300
VGA + Audio	Both	1	ST-C5VA-300

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VGA PS/2 KVM EXTENDER

Extend PS/2 keyboard, PS/2 mouse and VGA monitor up to 600 feet

Available Options:

- **300' or 600' extenders**
- **Audio**
- **RS232**
- **Internal Power Supply**
- **Dual output local unit – extend two remote units up to 600 feet**

XTENDEX® ST-C5KVM-600 (Remote and Local Unit)

Features & Applications

The XTENDEX® KVM Extender provides local and remote KVM (PS/2 keyboard, PS/2 mouse and VGA monitor) access to a PC up to 300/600 feet using CAT5/5e/6 UTP cable. Each extender consists of a local unit that connects to a computer and provides local keyboard, monitor and mouse connections, and a remote unit that connects to a keyboard, monitor and mouse.

- Supports two users: one local and one remote.
- Supports resolutions to 1920x1440.
- Allows local and remote access to network servers.
- Keep-alive keyboard/mouse emulation for flawless operation.
- Available with optional stereo audio or RS232 control (ST-C5KVM-300 available with audio option only).

- Optional dual output local unit available – extend two remote units up to 600 feet.
  - Local access not available on dual output local units.
- Available with optional internal power supply (ST-C5KVM-300 only) – eliminates dangling power adapter.
- Optional VESA mounting bracket is available for mounting the remote unit to the back of a flat panel monitor.

Specifications

Local Unit

Host Connection

- Supports a PC, SUN Fire™ V20z, or NTI Switch.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Linux, and FreeBSD.
- One male 15-pin HD / two male 6-pin miniDIN connectors for PC or NTI KVM switch.
- Optional stereo audio support – 3.5mm stereo plug.
- Optional RS232 support – female 9-pin D connector (ST-C5KVM-600 only).
- ST-2C5KVM(A/RS)-L-600: female 15-pin HD connector for downloading DDC table for remote monitor.

Local Access

- Crisp and clear 1920x1440 video resolution.
- One female 15-pin HD / two female 6-pin miniDIN connectors.
- Optional stereo audio support – 3.5mm stereo jack.
- Optional RS232 support – male 9-pin D connector (ST-C5KVM-600 only).
- Local access not available on dual output local units, ST-2C5KVM(A/RS)-L-600.

Remote Unit

- Supports resolutions to 1920x1440; refer to the resolution chart on page 7.
- Female 15-pin HD connector.
- Optional 3.5mm stereo audio connection.
- Optional male 9-pin D connector for RS232 (ST-C5KVM-600 only).

Dimensions

- WxDxH (in): 3.5x3.1x1.2
  - ST-C5KVM-300I WxDxH (in): 5.9x3.1x1.2

Video Quality Adjustment

- See chart below for the method of adjusting video quality for different lengths of CAT5/5e/6 cable.

NTI Part #	Video Quality Adjustment	NTI Part #	Video Quality Adjustment
ST-C5KVM-600	Automatic	ST-C5KVM-300	Manual
ST-C5KVMA-600	Automatic	ST-C5KVMA-300	Manual
ST-C5KVMRS-600	Automatic		

Power

- ST-C5KVM(A/RS)-600 and ST-C5KVM(A)-300:
  - Local and remote unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- ST-C5KVM-300I:
  - Local and remote unit: 110 or 220 VAC at 50 or 60 Hz via IEC connector.
- ST-2C5KVM(A/RS)-L-600:
  - Dual output local unit: powered from attached computer.

Regulatory Approvals

- CE, RoHS

Configuration and Cable Illustration
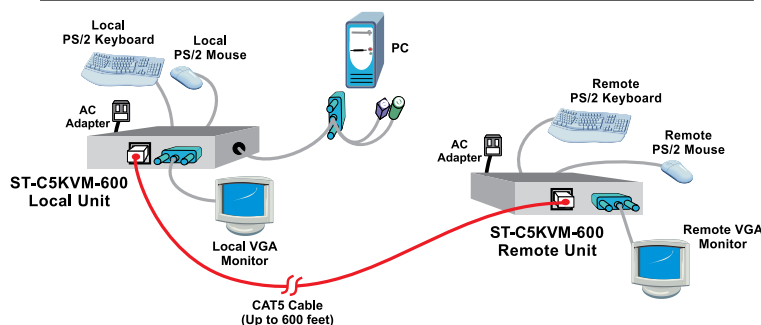
Local PS/2 Keyboard   Local PS/2 Mouse   PC

AC Adapter

ST-C5KVM-600 Local Unit

Local VGA Monitor

CAT5 Cable (Up to 600 feet)

Remote PS/2 Keyboard

AC Adapter   Remote PS/2 Mouse

ST-C5KVM-600 Remote Unit   Remote VGA Monitor

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Options

Stereo Audio

- Available on ST-C5KVM-600 and ST-C5KVM-300.
- Stereo audio can be heard both locally and remotely.
- Frequency response: 20 Hz to 20 kHz, ±1 dB.
- Signal-to-Noise Ratio (SNR): >72 dBA.
- Total Harmonic Distortion and Noise (THD+N): <0.06%.
- Stereo crosstalk: -70 dB.
- Input impedance: 10k Ohms.
- Maximum I/O levels: 3.1Vp-p (line level).
- Requires powered speakers.
- CD quality audio output.

RS232

- Available on ST-C5KVM-600.
- Supports TXD, RXD, DTR, DSR, CTS and RTS.
- Baud rate up to 56K.
- Support for a touch screen monitor.

VESA Mounting Bracket

- Use to mount the remote unit to the back of a flat panel monitor.
- Compliant to VESA 75mm and 100mm mounting hole patterns.
- Dimensions WxH (in): 9.7x4.8
- Compatible with the remote unit only.

Remote unit mounted to the back of a flat panel monitor using ST-C5MK-VESA mounting kit

Dual Output Local Unit

- Two RJ45 connectors for connecting two remote units.
- Two users can access the computer on a one at a time basis.
- Locked out user must wait three seconds after last keystroke or mouse movement occurs on active user.
- Features push button for downloading DDC data from monitor connected to VGA connector.

Configuration and Cable Illustration

Cables

- Use CAT5, CAT5e or CAT6 solid straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors.
- Cables not included.

Resolutions for ST-C5KVM-600

Cable	Distance (feet)	Resolution
CAT5/CAT5e Solid UTP	600	1024x768 at 60Hz
	400	1280x1024 at 60Hz
	300	1600x1200 at 60Hz
	100	1920x1440 at 60Hz
CAT5/5e Solid STP, CAT6 Solid UTP	300	1024x768 at 60Hz
	200	1280x1024 at 60Hz
	100	1920x1440 at 60Hz

Resolutions for ST-C5KVM-300

Cable	Distance (feet)	Resolution
CAT5/CAT5e Solid UTP	300	1280x1024 at 60Hz
	150	1600x1200 at 60Hz
	100	1920x1440 at 60Hz
CAT5/5e Solid STP, CAT6 Solid UTP	300	1024x768 at 60Hz
	150	1280x1024 at 60Hz
	100	1600x1200 at 60Hz

VGA PS/2 KVM Extender to 600 Feet Models

Supported Features	Local or Remote	# of Ports	NTI Part #
KVM	Both	1	ST-C5KVM-600
KVM + Audio	Both	1	ST-C5KVMA-600
KVM + RS232	Both	1	ST-C5KVMRS-600
KVM	Local	2	ST-2C5KVM-L-600
KVM + Audio	Local	2	ST-2C5KVMA-L-600
KVM + RS232	Local	2	ST-2C5KVMRS-L-600
KVM	Remote	1	ST-C5KVM-R-600
KVM + Audio	Remote	1	ST-C5KVMA-R-600
KVM + RS232	Remote	1	ST-C5KVMRS-R-600

VGA PS/2 KVM Extender to 300 Feet Models

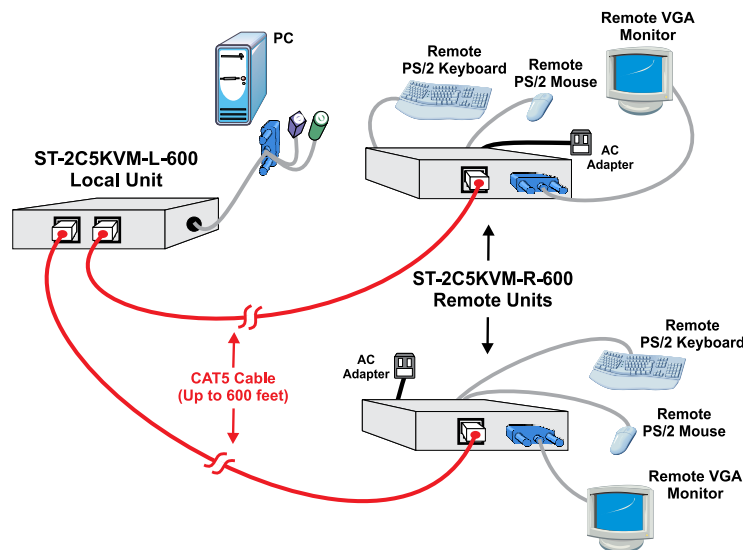| Supported Features	Local or Remote	# of Ports	NTI Part #
KVM	Both	1	ST-C5KVM-300
KVM + Audio	Both	1	ST-C5KVMA-300
KVM, Internal Power	Both	1	ST-C5KVM-300I

CAUTION

Not an Ethernet device. Do not connect to an Ethernet device (card, router, switch, bridge). Permanent damage to the product or Ethernet device may result.

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HI-RES VGA VIDEO EXTENDER / VGA PS/2 KVM EXTENDER

Extend a VGA monitor up to 1,000 feet / Extend control up to 1,000 feet

Available options:

- **Two-way Audio**
- **RS232**
- **Two-way Audio + RS232**

DIGITAL SIGNAGE

XTENDEX® ST-C5KVM2ARS-1000S (Remote and Local Units)

Features & Applications

The XTENDEX® VGA Extender transmits VGA video up to 1,000 feet away from a computer using CAT5/5e/6 cable. Each video extender consists of a local unit that connects to a computer and also supplies video to a local monitor, and a remote unit that connects to a monitor.

The XTENDEX PS/2 KVM Extender provides local and remote KVM (PS/2 keyboard, PS/2 mouse and VGA monitor) access to a PC or NTI KVM switch up to 1,000 feet using CAT5/5e/6 cable.

Both models support industry-leading ultra high resolutions up to 2048x1536, and are available with high quality audio (support for speakers and microphone) and/or high speed RS232.

- Automatically adjusts video quality and color skew for crystal clear video with longer cables.
- High quality, rugged steel construction with durable powder coat finish.

- Available options: two-way audio, RS232, two-way audio + RS232.
- DDC2B support for local or remote monitor (user selectable).
- Built-in surge protection.

Specifications

Local Unit

Host Connection

- VGA models support a computer with VGA video.
- KVM models support a PS/2 PC.
- One male 15-pin HD connector.
- Two male 6-pin miniDIN connectors (KVM models only).
- Two-way audio option: two 3.5mm stereo plugs (audio in / mic out)
- RS232 option: female 9-pin D connector.
- Two-way audio + RS232 option: two 3.5mm stereo plugs (audio in / mic out), female 9-pin D connector

Local Access

- Crisp and clear 2048x1536 video resolution.
- One female 15-pin HD connector.
- Two female 6-pin miniDIN connectors (KVM models only).
- Two-way audio option: two 3.5mm stereo jacks (audio out / mic in)
- RS232 option: female RJ45 connector.
- Two-way audio + RS232 option: two 3.5mm stereo jacks (audio out / mic in), female RJ45 connector.

Remote Unit

- Supports resolutions up to 2048x1536.
- One female 15-pin HD connector.
- Two female 6-pin miniDIN connectors (KVM models only).
- Two-way audio option: two 3.5mm stereo jacks (audio out / mic in)
- RS232 option: female RJ45 connector.
- Two-way audio + RS232 option: two 3.5mm stereo jacks (audio out / mic in), female RJ45 connector.

Video Quality Adjustment

- Automatically adjusts the video quality and color skew to compensate for varying lengths of CAT5/5e/6 cable.
  - Maximum delay: 62ns in 2ns steps.
- Fine adjustment available via push buttons on the remote unit.
- Settings are automatically stored in the unit. The next time the unit is powered on, the adjustment will be recalled.

Power

- Local and remote untit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 10W (each – local and remote unit).

Dimensions

- WxDxH(in): 5.1x3.1x1.2

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

MTBF			
NTI Part #	**Hours**	**NTI Part #**	**Hours**
ST-C5KVM-L-1000S	88,067	ST-C5KVM-R-1000S	90,446
ST-C5KVM2A-L-1000S	86,685	ST-C5KVM2A-R-1000S	90,896
ST-C5KVMRS-L-1000S	86,616	ST-C5KVMRS-R-1000S	90,291
ST-C5KVM2ARS-L-1000S	85,139	ST-C5KVM2ARS-R-1000S	88,465
ST-C5V-L-1000S	89,052	ST-C5V-R-1000S	91,707
ST-C5V2A-L-1000S	87,050	ST-C5V2A-R-1000S	91,173
ST-C5VRS-L-1000S	87,040	ST-C5VRS-R-1000S	91,126
ST-C5V2ARS-L-1000S	86,287	ST-C5V2ARS-R-1000S	90,118

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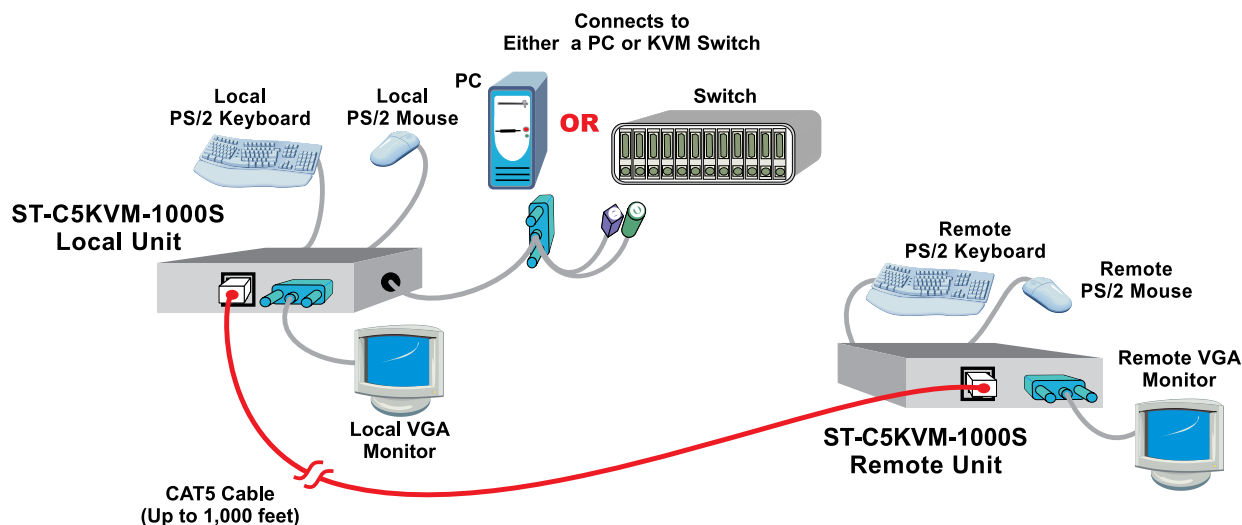
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HI-RES VGA VIDEO EXTENDER / VGA PS/2 KVM EXTENDER

Extend a VGA monitor up to 1,000 feet / Extend control up to 1,000 feet

Configuration and Cable Illustration

Options

- Choose between two-way audio and/or RS232.

Two-way Audio

- Stereo audio
  - Stereo audio can be heard both locally and remotely.
  - Frequency response: 20 Hz to 20 kHz, ± 1 dB.
  - Signal-to-Noise Ratio (SNR): >76 dBA.
  - Total Harmonic Distortion and Noise (THD+N): <0.1%.
  - Stereo crosstalk: -70 dB.
  - Input impedance: 10k Ohms.
  - Line level output; supports multimedia speakers.
  - Maximum I/O levels: 3.1Vp-p (line level).
  - CD quality audio output.
- Microphone
  - Microphone can be used locally and remotely, user selectable.
  - Supports electret microphones.
  - Input impedance: 10k Ohms.
  - Maximum I/O levels: 1V, unbalanced

RS232

- Supports TXD, RXD, DTR, DSR, DCD, CTS and RTS.
- Baud rate up to 57.6K.
- Support for a touch screen monitor.

Cables

- Use CAT5, CAT5e or CAT6 straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors.
- Cables not included.

CAUTION

Not an Ethernet device. Do not connect to an Ethernet device (card, router, switch, bridge). Permanent damage to the product or Ethernet device may result.

Distances and Resolutions for CAT5/Cat5e and CAT6 Cables

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

VGA Extender Models

Supported Features	NTI Part #
VGA only	ST-C5V-1000S
VGA + two-way audio	ST-C5V2A-1000S
VGA + RS232	ST-C5VRS-1000S
VGA + two-way audio + RS232	ST-C5V2ARS-1000S

PS/2 KVM Extender Models

Supported Features	NTI Part #
KVM	ST-C5KVM-1000S
KVM + two-way audio	ST-C5KVM2A-1000S
KVM + RS232	ST-C5KVMRS-1000S
KVM + two-way audio + RS232	ST-C5KVM2ARS-1000S

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VGA USB KVM EXTENDER WITH AUDIO OPTION TO 300 FEET

Extend USB keyboard, USB mouse and VGA monitor up to 300 feet

Available options:

- **Audio**

- **Dual output local unit – extend two remote units up to 300 feet**

XTENDEX® ST-C5USBV-300 (Remote and Local Units)

Features & Applications

The XTENDEX® VGA USB KVM Extender extends a USB keyboard/mouse and VGA display up to 300 feet via CAT5/5e/6 cable. Each ST-C5USBV-300 consists of a local unit that connects to a computer and provides local keyboard, monitor and mouse connections, and a remote unit that connects to a keyboard, monitor and mouse. The local and remote units are interconnected via CAT5/5e/6 cable.

- Supports local and remote access.
- Compatible with all video resolutions up to WUXGA (dependant upon CAT5/5e/6 extension length).
- Supports resolutions to 1920x1440.
- High quality, rugged steel construction with durable powder coat finish.
- Keyboard and mouse are hot-pluggable.

- Keep-alive keyboard/mouse emulation for flawless operation.
- Built-in surge protection.
- Available with optional stereo audio.
- Optional dual output local unit available – extend two remote units up to 300 feet.
  - Local access not available on dual output local units.

Specifications

Local Unit

Host Connection

- Supports a USB Computer (PC, SUN, MAC).
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD and MAC OS 9/10.
- One male 15-pin HD and one male USB Type A connectors.
- Optional stereo audio support – 3.5mm stereo plug.
- ST-2C5USBV(A)-L-300: one female 15-pin HD connector for downloading DDC table for remote monitor.

Local Access

- Crisp and clear 1920x1440 video resolution.
- One female 15-pin HD connector and two female USB Type A connectors.
- Optional stereo audio support – 3.5mm stereo plug.
- Local access not available on dual output local units, ST-2C5USBV(A)-L-300.

Remote Unit

- Supports resolutions to 1920x1440; refer to the resolution chart on page 11.
- One female 15-pin HD connector and two female USB Type A connectors.
- Optional stereo audio support – 3.5mm stereo plug.
- The ST-C5USBV-300 will only work with USB (low/full speed) keyboards and mice. It is not designed to support other USB devices.
  - Supports most wireless keyboards and mice.

Video Quality Adjustment

- Video quality adjustment for different lengths of CAT5/5e/6 cable is done manually.

Power

- ST-C5USBV(A)-300:
  - Local and remote unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- ST-2C5USBV(A)-L-300:
  - Dual output local unit: powered from attached computer.
- Power consumption: 10W (each – local and remote unit)

MTBF			
NTI Part #	**Hours**	**NTI Part #**	**MTBF**
ST-C5USBV-300 (local)	79,100	ST-C5USBV-300 (remote)	81,956
ST-C5USBVA-300 (local)	78,104	ST-C5USBVA-300 (remote)	78,742

Dimensions

- WxDxH(in): 3.5x3.1x1.2

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.
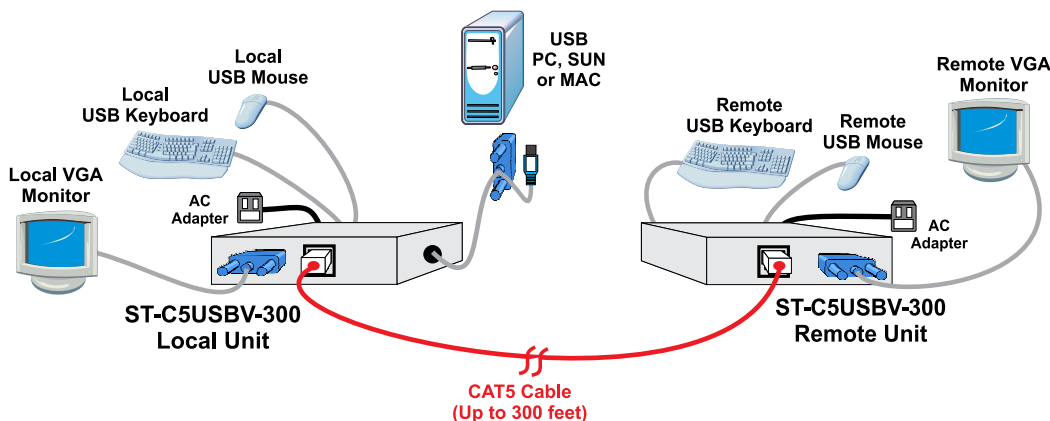
Regulatory Approvals

- CE, RoHS

VGA USB KVM EXTENDER WITH AUDIO OPTION TO 300 FEET

Extend USB keyboard, USB mouse and VGA monitor up to 300 feet

### Configuration and Cable Illustrations of ST-C5USBV-300

Options

Stereo Audio

- Stereo audio can be heard both locally and remotely.
- Frequency response: 20 Hz to 20 kHz, +/-1 dB.
- Signal-to-Noise Ratio (SNR): >76 dBA.
- Total Harmonic Distortion and Noise (THD+N): <0.06%.
- Stereo crosstalk: -70 dB at 1 kHz.
- Maximum load: 2k Ohms, unbalanced
- Input impedance: 10k Ohms.
- Line level output; supports powered speakers.
- Maximum I/O levels: 3.1Vp-p (line level).

Dual Output Local Unit

- Two RJ45 connectors for connecting two remote units.
- Two users can access the computer on a one at a time basis.
- Locked out user must wait three seconds after last keystroke or mouse movement occurs on active user.
- Features push button for downloading DDC data from monitor connected to VGA connector.

Configuration and Cable Illustration of ST-2C5USBV-L-300 and ST-C5USBV-R-300
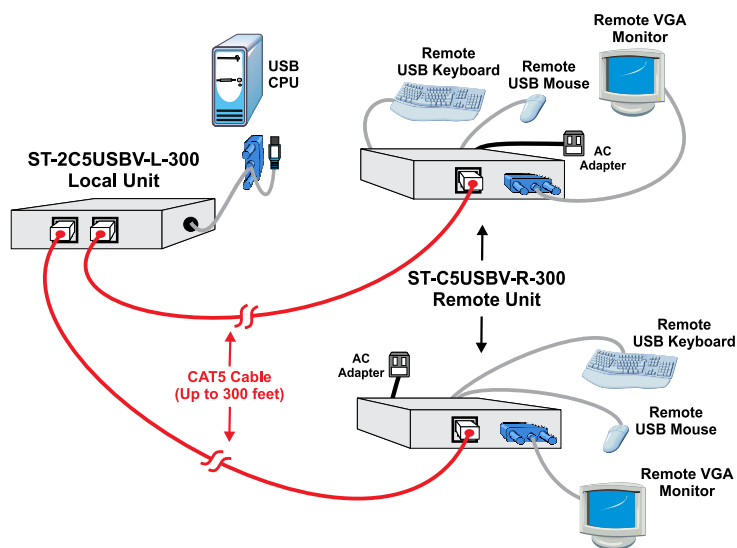
Distances and Resolutions for CAT5/Cat5e and CAT6 Cables

Cable	Distance (feet)	Resolution
CAT5/CAT5e Solid UTP	300	1024x768 at 60Hz
	150	1600x1200 at 60Hz
	100	1920x1440 at 60Hz
CAT5/5e Solid STP, CAT6 Solid UTP	300	1024x768 at 60Hz
	150	1280x1024 at 60Hz
	100	1600x1200 at 60Hz

Cables

- Use CAT5, CAT5e or CAT6 solid UTP straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors.
- Cables not included.

VGA USB KVM Extender Models

Supported Features	Local or Remote	# of Ports (Local Unit)	NTI Part #
USB KVM	Both	1	ST-C5USBV-300
USB KVM + Audio	Both	1	ST-C5USBVA-300
USB KVM	Local	2	ST-2C5USBV-L-300
USB KVM + Audio	Local	2	ST-2C5USBVA-L-300
USB KVM	Remote	NA	ST-C5USBV-R-300
USB KVM + Audio	Remote	NA	ST-C5USBVA-R-300

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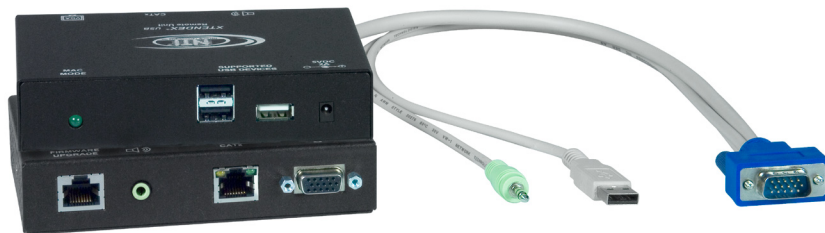
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11

HI-RES VGA USB KVM EXTENDER VIA CAT5

Extend USB keyboard, USB mouse and VGA monitor up to 1,000 feet

Available options:

NEW

- **USB connector for USB touch screen monitor, CAC card reader, or SMART Board™ Interactive Whiteboard**
- **Audio**

XTENDEX® ST-C5USBVUA-1000S Local and Remote Units

Features & Applications

The XTENDEX® VGA USB KVM Extender provides local and remote KVM (USB keyboard, USB mouse and VGA monitor) access to a USB computer or NTI KVM switch up to 1,000 feet using CAT5/5e/6 UTP cable. Each ST-C5USBV-1000S consists of a local unit that connects to a computer and provides local keyboard, monitor and mouse connections, and a remote unit that connects to a keyboard, monitor and mouse. The local and remote units are interconnected via CAT5/5e/6 cable.

- Industry-leading ultra high resolutions up to 2048x1536.
- High quality, rugged steel construction with durable powder coat finish.
- Automatically adjust video quality and color skew for crystal clear video with longer cables.
- DDC2B support for local or remote monitor (user selectable).
- Built-in surge protection.

- Available with optional stereo audio and/or additional USB 2.0 (low/full speed) port for local and remote user.
  - For the additional USB port on the local unit, connect any type of USB device (fully transparent USB connection).
  - For the additional USB port on the remote unit, use to connect a USB touch screen monitor, SMART Board™ Interactive Whiteboard, or CAC card reader.

Specifications

Local Unit

Host Connection

- Supports a USB computer (PC, SUN, MAC).
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- One male 15-pin HD connector.
- One male USB Type A connector.
- Audio option: one 3.5mm stereo plug (audio in).

Local Access

- Crisp and clear 2048x1536 video resolution.
- One female 15-pin HD connector.
- Two female USB Type A connectors.
- Audio option: one 3.5mm stereo plug (audio out).
- Available with an optional female USB Type A connector for an additional USB 2.0 (low/full speed) device.
  - ◆ Connect any type of USB device – fully transparent USB connection.
  - ◆ USB maximum data rate: 12 Mbps

Remote Unit

- Supports resolutions up to 2048x1536; refer to the resolution chart on page 13 for resolutions at different lengths.
- One female 15-pin HD connector.
- Two female USB Type A connectors.
- Audio option: one 3.5mm stereo plug (audio out).
- Available with an optional female USB Type A connector for an additional USB 2.0 (low/full speed) device.
  - Use to connect a USB touch screen monitor, SMART Board™ Interactive Whiteboard, or CAC card reader.
  - USB maximum data rate: 12 Mbps

Video Quality Adjustment

- Automatically adjusts the video quality and color skew to compensate for varying lengths of CAT5/5e/6 cable.
  - Maximum delay: 62ns in 2ns steps.
- Manual fine adjustments are made via keyboard commands.
- Settings are automatically stored in the unit. The next time the unit is powered on, the adjustment will be recalled.

Power

- Local and remote unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.

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.

Dimensions

- WxDxH (in): 5.1x3.1x1.2

Regulatory Approvals

- CE, RoHS

MTBF			
NTI Part #	Hours	NTI Part #	Hours
ST-C5USBV-L-1000S	38,570	ST-C5USBV-R-1000S	43,429
ST-C5USBVU-L-1000S	37,943	ST-C5USBVU-R-1000S	44,468
ST-C5USBVA-L-1000S	38,453	ST-C5USBVA-R-1000S	43,234
ST-C5USBVUA-L-1000S	37,838	ST-C5USBVUA-R-1000S	42,606

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Extend USB keyboard, USB mouse and VGA monitor up to 1,000 feet

Configuration and Cable Illustration
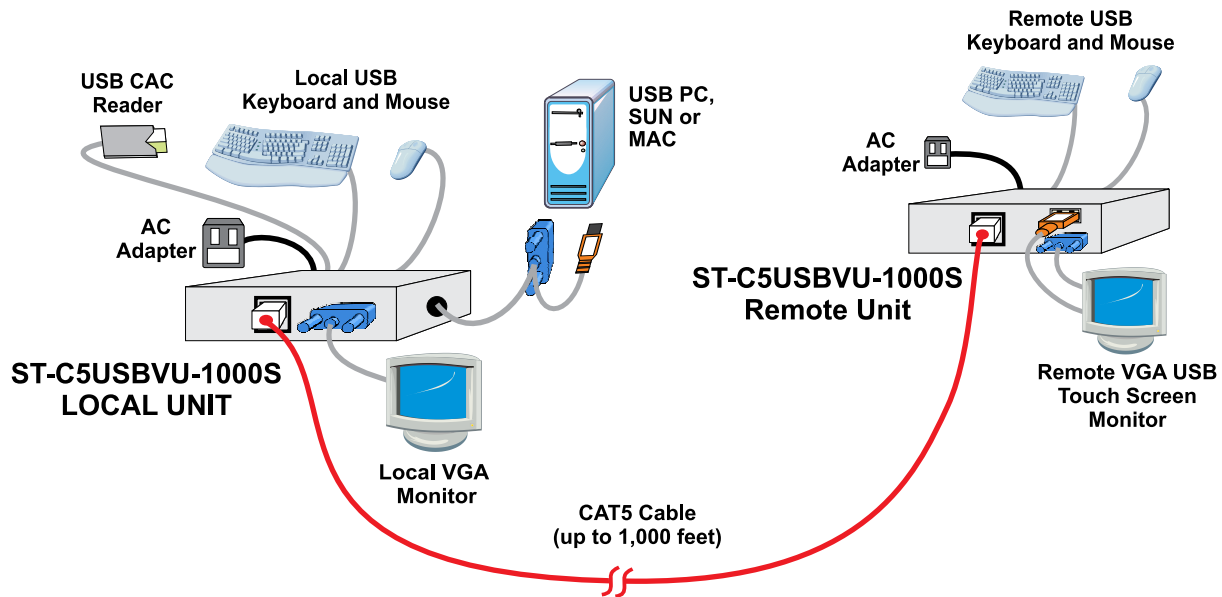
Options

Stereo Audio

- Stereo audio can be heard both locally and remotely.
- Frequency response: 20 Hz to 20 kHz, ±1 dB.
- Signal-to-Noise Ratio (SNR): >76 dBA.
- Total Harmonic Distortion and Noise (THD+N): <0.1%.
- Stereo crosstalk: -70 dB.
- Input impedance: 10k Ohms.
- Line level output; supports multimedia speakers.
- Maximum I/O levels: 3.1Vp-p (line level).
- CD quality audio output.

Additional USB Port

- Additional USB 2.0 port for local and remote user.
  - For the additional USB port on the local unit, connect any type of USB device (fully transparent USB connection).
  - For the additional USB port on the remote unit, use to connect a USB touch screen monitor, SMART Board™ Interactive Whiteboard, or CAC card reader.

CAUTION

Not an Ethernet device. Do not connect to an Ethernet device (card, router, switch, bridge). Permanent damage to the product or Ethernet device may result.

Distances and Resolutions for CAT5/CAT5e and CAT6 Cables

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

VGA USB KVM Models

Supported Features	NTI Part #
USB KVM	ST-C5USBV-1000S
USB KVM + ADDITIONAL USB PORT	ST-C5USBVU-1000S
USB KVM + AUDIO	ST-C5USBVA-1000S
USB KVM + ADDITIONAL USB PORT + AUDIO	ST-C5USBVUA-1000S

TRANSPARENT VGA USB EXTENDER

Extend four USB devices and a VGA monitor up to 200 feet

Features & Applications

The Transparent VGA USB Extender extends four USB devices and a VGA monitor up to 200 feet. Each USB extender consists of a local unit that connects to a computer and also supplies video to a local monitor, and a remote unit that connects to four USB devices and a monitor.

■ Supports fully transparent USB connections – supports all USB computers (PC, SUN and MAC) and their associated peripherals.
■ Extend devices such as keyboards, mice, printers, game controllers, USB flash drives, touch screen monitors, whiteboards, etc.
■ Supports local and remote VGA monitors.
■ Supports resolutions to 2048x1536.
■ DDC2B support for local or remote monitor.
■ Compliant with USB 2.0 (low/full speed) stadards.
■ Supports Plug-n-Play specification.
■ Available options: dual video, dual video + two-way audio (support for speakers and microphone) + RS232.
   • ST-C5USBVT: Transmits signals over one CATx cable.
   • ST-C5USB2VT: Transmits signals over two CATx cables.
   • ST-C5USB2V2ARST: Transmits signals over two CATx cables.

Cables

■ ST-C5USBVT: one 3-foot VGA + USB cable included.
■ ST-C5USB2VT: one 3-foot VGA + USB and one 3-foot VGA cables included.
■ ST-C5USB2V2ARST: one 3-foot VGA + USB, one 3-foot VGA, two 3.5mm audio, and one RJ45 EIA-232 serial cables included.
■ Use CAT5e/6/7 straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors (not included).

Distances and Resolutions for CAT5e/CAT6 and CAT7 Cables

Cable	Distance (ft)	Resolution
CAT5e Solid UTP	200	2048x1536 at 60Hz
CAT5e Stranded UTP/STP	100	2048x1536 at 60Hz
	200	1280x1024 at 60Hz
CAT6 Solid UTP	100	1920x1440 at 60Hz
	150	1600x1200 at 60Hz
CAT6 550MHz Solid UTP	100	2048x1536 at 60Hz
	150	1920x1200 at 60Hz
CAT6 Solid STP	100	2048x1536 at 60Hz
	150	1920x1200 at 60Hz
CAT7 600MHz Solid STP	200	2048x1536 at 60Hz
CAT7 600MHz Stranded STP	100	2048x1536 at 60Hz

Transparent VGA USB Extender Models

Supported Features	NTI Part #	Local and Remote Units Size WxDxH (in)
VGA + USB	ST-C5USBVT	5.1x3.1x1.2
Dual VGA + USB	ST-C5USB2VT	5.1x3.1x1.7
Dual VGA + USB + two-way audio + RS232	ST-C5USB2V2ARST	5.1x3.1x1.7

Available Options:

• **Dual Video**
• **Dual video + two-way audio + RS232**

ST-C5USBVT (Remote Unit, Front and Back)

Specifications

Local Unit

Host Connection

• Supports USB computers (PC, SUN and MAC) with VGA video.
• ST-C5USBVT: one male 15-pin HD and one female USB Type B connectors.
• ST-C5USB2VT: two male 15-pin HD and one female USB Type B connectors.
• ST-C5USB2V2ARST: two male 15-pin HD, one female USB Type B, two female 3.5mm stereo, and one female RJ45 EIA-232 serial port connectors.

Local Access

• Crisp and clear 2048x1536 video resolution.
• ST-C5USBVT: one female 15-pin HD connector for local VGA monitor.
• ST-C5USB2VT and ST-C5USB2V2ARST: two female 15-pin HD connectors for local dual VGA monitors.

Remote Unit

■ ST-C5USBVT: one female 15-pin HD and four female USB Type A connectors.
■ ST-C5USB2VT: two female 15-pin HD and four female USB Type A connectors.
■ ST-C5USB2V2ARST: two female 15-pin HD, four female USB Type A, two female 3.5mm stereo, and one female RJ45 EIA-232 serial port connectors.
■ Provides support for full-speed (12 Mbps) or low-speed (1.5 Mbps) USB devices.
■ Supports resolutions to 2048x1536.
■ Video quality adjustment for different lengths of CATx cable is done manually.

Power

■ ST-C5USBVT:
   • Local unit: powered from attached computer.
   • Remote unit: 100 to 240 VAC at 50 or 60 Hz via AC adapter.
■ ST-C5USB2VT and ST-C5USB2V2ARST:
   • Local/Remote unit: 100 to 240 VAC at 50 or 60 Hz via AC adapter
■ The combined current consumption of the connected devices cannot exceed 1.4A

Regulatory Approvals

■ CE, RoHS

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TRANSPARENT USB DVI EXTENDER

Extend four USB devices and a digital DVI display up to 250 feet

NEW

ST-C5USBD-250 (Remote Unit, Front and Back)

Features & Applications

The Transparent USB DVI Extender extends four USB devices and a single link digital DVI display up to 250 feet via two CAT5e/6/7 cables. Each USB DVI extender consists of a local unit that connects to a computer, and a remote unit that connects to four USB devices and a DVI display.

- Supports fully transparent USB connections – able to support all common hardware platforms including PC, SUN and MAC and their associated peripherals.
- Extend devices such as keyboards, mice, printers, game controllers, USB flash drives, touch screen monitors, whiteboards, etc.

- Supports resolutions to 1920x1200.
- Compliant with USB 2.0 (low/full speed) standards.
- Supports Plug-n-Play specification.
- Built in default EDID configuration table.

Specifications

Local Unit

- Supports USB computers (PC, SUN and MAC) with single link digital DVI video.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- One female DVI-I and one female USB Type B connectors.

Remote Unit

- One female DVI-I and four female USB Type A connectors.
- Supports resolutions to 1920x1200.
- Provides support for full-speed (12 Mbps) or low-speed (1.5 Mbps) USB devices.

Power

- Local and remote unit: 90 to 240 VAC at 50 or 60 Hz via AC adapter.

Dimensions

- WxDxH (in): 5.5x3.5x1

Configuration and Cable Illustration
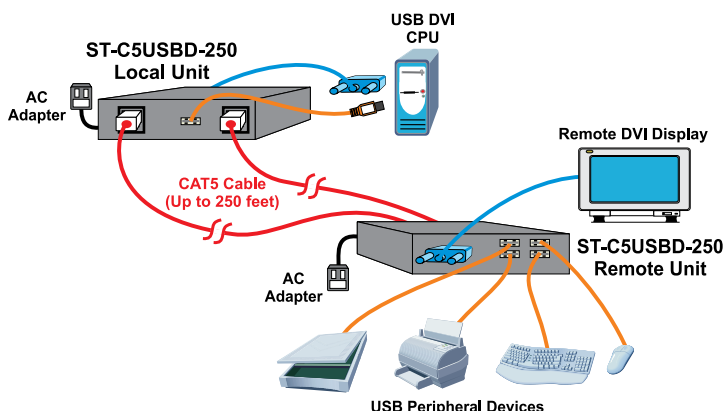
Cables

- For best results, CAT6 550 MHz UTP solid cable with TIA/EIA-568B wiring terminated with standard RJ45 connectors is recommended (not included).
- Use DVI-IS-xx-MM cable to connect a DVI source or dislay (not included).
- Use male USB Type A to male USB Type B cable to connect source (not included).

Distances and Resolutions for CAT5e/CAT6 and CAT7 Cables		
Cable	**Distance (ft)**	**Resolution**
CAT5e Solid UTP	100	1920x1200 at 60Hz
	150	1280x1024 at 60Hz
	230	1024x768 at 60Hz
CAT6 Solid UTP	150	1920x1200 at 60Hz
	200	1600x1200 at 60Hz
CAT6 550 MHz Solid	150	1920x1200 at 60Hz
	200	1600x1200 at 60Hz
	250	1024x768 at 60Hz
CAT6 Solid STP	200	1280x1024 at 60Hz
CAT7 Solid STP	200	1920x1200 at 60Hz

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15

USB EXTENDER

Extend one USB device up to 150 feet / Extend four USB devices up to 200 feet

Extends one USB device up to 150 feet

USB-C5-LC
(Local and Remote Unit)

Extends four USB devices up to 200 feet

USB-C5-200
(Remote Unit, Front and Back)

Features & Applications

The USB-C5-LC extends one USB device up to 150 feet, and the USB-C5-200 extends four USB devices up to 200 feet. The USB extenders consist of two units, the local unit and the remote unit, which are interconnected with CAT5/5e/6 cable.

- Extend self-powered and/or bus-powered USB peripheral devices (security cameras, printer, scanner, keyboard, etc.).
- Transparent data extension.
- Compatible with USB computers (PC, SUN, MAC).
- Compliant with USB 1.1 (low/full speed) standards.
- Supports Plug-n-Play specification.

Specifications

Local Unit

- USB-C5-LC: one male USB Type A connector on attached 10-inch cable.
- USB-C5-200: one female USB Type B connector.
- Supports a USB computer (PC, SUN, MAC).
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD and MAC OS 9/10.

Remote Unit

- USB-C5-LC: one female USB Type A connector.
- USB-C5-200: four female USB Type A connectors.
- Provides support for full-speed (12 Mbps) or low-speed (1.5 Mbps) USB devices.
- Supports self-powered and/or bus-powered USB devices.

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.

Configuration and Cable Illustrations

USB-AB-1M
(Supplied)

USB PC, SUN or MAC

USB-C5-200 Local Unit

CAT5 Cable (Up to 200 feet)

AC Adapter

USB-C5-200 Remote Unit

USB Peripheral Devices

CAUTION

Not an Ethernet device. Do not connect to an Ethernet device (card, router, switch, bridge). Permanent damage to the product or Ethernet device may result.

Power

- USB-C5-LC:
  - Local unit: powered from attached computer.
  - Remote unit: powered from local unit.
    - USB port supports up to 400mA current.
- USB-C5-200:
  - Local unit: powered from attached computer.
  - Remote unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
    - The combined current consumption of the connected devices cannot exceed 1.4A.

Regulatory Approval

- USB-C5-LC: CE, RoHS
- USB-C5-200: CE, RoHS

Cables

Interface Cables

- One-meter male USB Type A to male USB Type B interface cable included with USB-C5-200.
- Existing device cables with male Type A connector required.

Extension Cable

- Use CAT5/5E/6 solid UTP straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors (not included).

Extension Limits

- USB-C5-LC: extend CAT5/5e/6 up to 150 feet.
- USB-C5-200: extend CAT5/5e/6 up to 200 feet.
- Use of CAT6 cable may decrease maximum length of extension.

USB Extender Models		
NTI Part #	# of Devices	Local and Remote Units Size WxDxH (in)
USB-C5-LC	1	1.2x2.2x0.8
USB-C5-200	4	5.1x3.1x1.2
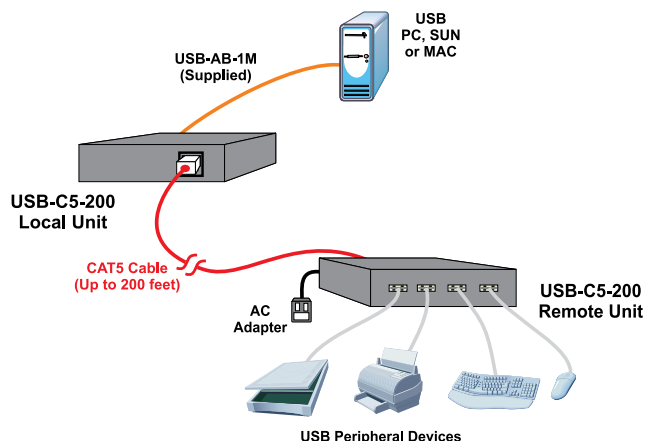
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1394 FIREWIRE EXTENDER VIA CAT5E/6/7

Extend a 1394 FireWire device up to 279 feet

XTENDEX® ST-C51394-250 (Front and Back)

Features & Applications

The XTENDEX® 1394 FireWire Extender extends one FireWire device up to 279 feet from a computer. The FireWire extender consists of two units, the local unit and the remote unit, which are interconnected with CAT5e/6/7 cable.

- Works at speeds of 400, 200 and 100 Mbps.
- Supports Plug-n-Play specifications.
- Pure hardware design, no software or drivers required.

- Ideal solution for a wide range of applications, including:
  - A/V broadcasting and editing (printers, scanners, digital cameras, digital audio recorders).
  - Security (surveillance cameras, webcams, mass storage).
  - Long range IEEE FireWire networking.

Specifications

- Extend a FireWire device up to 279 feet.
  - Refer to the distance/cable chart below for maximum distances using varying types of CATx cable.
- Compatible with computers with 6-pin or 9-pin 1394 connectors.
- Full duplex data rate at 100/200/400 Mbps.

Connectors

- One female IEEE 1394 9-pin connector on each local and remote unit.
- One female RJ45 connector on each local and remote unit.

Dimensions

- WxDxH(in) 3.0x2.2x1.0

Power

- Supports self-powered devices.
- Local unit: powered by attached computer through FireWire cable.
- Remote unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 2.7W

Enviromental

- Operating temperature: 32°F to 158°F (0°C to 70°C).
- Storage temperature: -85° to 302°F (-65°C to 150°C)

Regulatory Approvals

- CE, FCC, RoHS

Cables

- For best results, CAT6 550 MHz UTP solid cable or CAT7 600 MHz STP solid cable with TIA/EIA-568B wiring terminated with standard RJ45 connectors is recommended.
- Use the included crossover adapter to enable proper communication between local and remote units.

Package Includes

- 1394 FireWire Extender – local and remote unit.
- User manual.
- Power adapter.
- 6-inch male 9-pin 1394b bilingual to male 6-pin 1394a cable.
- Male-to-female CATx RJ45 crossover adapter.

Configuration and Cable Illustrations
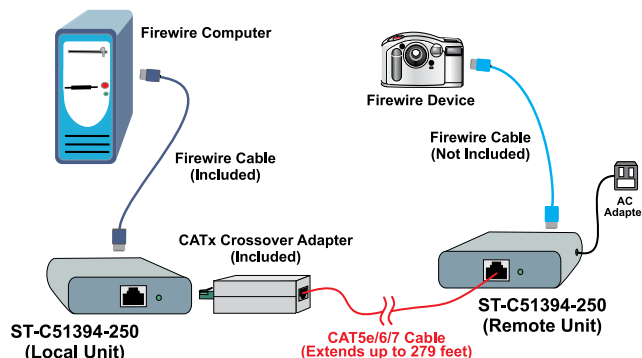
Distances for CAT5e/CAT6/CAT7 Cable	
Cable	**Distance (ft)**
CAT5e Solid UTP	230
CAT6 Solid UTP	200
CAT6 Solid STP	200
CAT6 550 MHz Solid UTP	250
CAT7 600 MHz Solid STP	279

www.networktechinc.com/1394-extender.html

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FIREWIRE EXTENDER VIA FIBER OPTIC CABLE

Extend a FireWire device up to 3,280 feet

FireWire
2-Fiber

XTENDEX® ST-FO1394-SC (Front & Back)
* the transmitter and receiver look the same

Features & Applications

The XTENDEX® FireWire Extender extends a FireWire device up to 3,280 feet using duplex multimode SC fiber optic cable. Each FireWire extender consists of a transmitter that connects to a computer and a receiver that connects to a FireWire devices.

- Complies with 1394a and 1394b standards.
- Works at speeds of 400, 200 and 100 Mbps at full duplex.
- Using 50/125um cable, extend up to 3,280 feet.
- Using 62.5/125um cable, extend up to 1,640 feet.
- Supports Plug-n-Play specifications.
- Pure hardware design, no software or drivers required.

- Ideal for many types of applications.
  - A/V broadcasting and editing (printers, scanners, digital cameras/ camcorders, digital audio recorders).
  - Security (surveillance cameras, webcams, mass storage).
 - Long range IEEE FireWire networking.

Specifications

- Compatible with computers with 1394 outputs.
- Compliant with IEEE 1394b and IEEE1394a-2000 specifications.
- Full duplex data rate at 100/200/400 Mbps.
- Laser Class 1 Safety compliant.
- Optical source: 850nm VCSEL.
- Supports 62.5um and 50um multimode fiber optic cable.

Connectors (Transmitter and Receiver)

- One duplex SC connector.
- One 6-pin IEEE 1394 connectors.
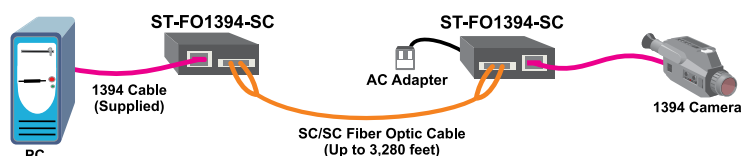
Dimensions

- WxDxH (in): 4x2.8x0.9

Power

- Local and remote unit: 110 to 220 VAC at 50 or 60 Hz via AC adapter.

Regulatory Approvals

- CE, FCC, RoHS

Cables

- Use one duplex SC 50-micron fiber optic cable to extend up to 3,280 feet or one duplex SC 62.5-micron fiber optic cable to extend up to 1,640 feet (not included).
- Includes one 4.5-meter male-to-male 6-pin 1394 cable.

Configuration and Cable Illustration

ST-FO1394-SC   ST-FO1394-SC

AC Adapter

1394 Cable
(Supplied)

1394 Camera

SC/SC Fiber Optic Cable
(Up to 3,280 feet)

PC

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International calls

Extend an HDMI or DVI display up to 300 feet away from a video source

XTENDEX® ST-C5HDMI-300-LC
(Local and Remote Units)

Specifications

Local Unit

- One female HDMI-A port for source connection.
  - Not compatible with nVidia Quadro FX series video cards.
- One female RJ45 port for sending high definition video/audio signals.
- One female RJ45 port for sending DDC signal.

Remote Unit

- One female HDMI-A port for HDTV or computer display.
- One female RJ45 port for receiving high definition video/audio signals.
- One female RJ45 port for receiving DDC signal.
- Signal type: HDMI 1.3a, HDCP 1.3 compliant.
- Supports HDTV reolutions to 1080i and computer resolutions to 1920x1200.

Power

- Local unit: powered from remote unit through CAT5e/6 cable.
- Remote unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption:
  - Local Unit: Powered from remote unit.
  - Remote Unit: 5W

Environmental

- Operating temperature: 5°F to 130°F (-15°C to 55°C).
- Storage temperature: -20°F to 140°F (-30°C to 60°C).
- Operating and Storage Relative Humidity: 5 to 90% non-condensing RH.

Dimensions

- WxDxH (in): 1.8x3.3x0.9

Regulatory Approvals

- CE, FCC, RoHS
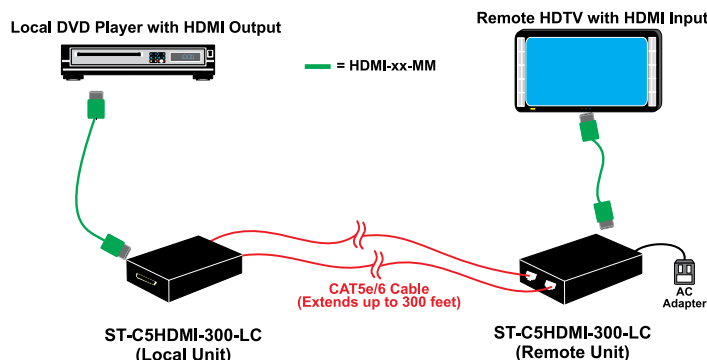
MTBF

- 20,000 hrs.

Features & Applications

The XTENDEX® HDMI/DVI Extender transmits digital video and audio signals up to 300 feet using two CAT5e/6 cables. Each video extender consists of a local unit that connects to an HDMI/DVI source and a remote unit that connects to an HDMI/DVI display.

- Ideal solution for digital signage applications.
- Transmits an HDMI signal over two CAT5e/6 cables.
- Supports HDTV resolutions to 1080i and computer resolutions to 1920x1200.
- Compliant with HDMI 1.3a and HDCP 1.3 standards.
- Compliant with DDWG DVI standard.
- Supports the DDC2B protocol.
- Only one power supply is necessary to power both the local and remote units.

Cables

- Use HDMI-xx-MM cable to connect an HDMI source or display.
- Use DVI-HDMI-xx-MM cable to connect a DVI source or display.
- Use CAT5e/6 solid straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors.
- Cables not included.

Configuration and Cable Illustration – HDMI

Local DVD Player with HDMI Output
Remote HDTV with HDMI Input
= HDMI-xx-MM
CAT5e/6 Cable (Extends up to 300 feet)
ST-C5HDMI-300-LC (Local Unit)
ST-C5HDMI-300-LC (Remote Unit)
AC Adapter

Distances and Resolutions for CAT5e and CAT6 Cables			
Cable	Distance (ft)	Maximum Standard Resolution	Maximum HDTV Resolution
CAT5e Solid UTP	100	1920x1200 at 60Hz	1080i
	150	1280x1024 at 60Hz	1080i
	200	1024x768 at 60Hz	1080i
	250	800x600 at 60Hz	480p
CAT6 550 MHz Solid UTP	100	1920x1200 at 60Hz	1080i
	200	1280x1024 at 60Hz	1080i
	250	1024x768 at 60Hz	1080i
	275	800x600 at 60Hz	480p
CAT6 Solid STP	100	1920x1200 at 60Hz	1080i
	200	1280x1024 at 60Hz	1080i
	300	1024x768 at 60Hz	480p

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HDMI EXTENDER VIA ONE CAT6/7

Extend an HDMI display up to 200 feet away from a video source

**XTENDEX® ST-C5HDMI-150 Local and Remote Units**

Features & Applications

The XTENDEX® HDMI Extender transmits digital video and audio signals up to 200 feet from an HDMI source. Each video extender consists of a local unit that connects to an HDMI source (Blu-Ray player, satellite receiver, etc.), and a remote unit that connects to an HDMI display. The local and remote units are interconnected via one CAT6/7 solid cable.

Optional daisy-chain receivers allow you to extend one video source to multiple displays and to reach longer distances. The daisy-chain receivers are available in one-output and three-output options.

- Transmits an uncompressed HDMI signal over one CAT6/7 cable.
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.
- Compliant with HDMI 1.2 and HDCP 1.1 standards.
- Supports the DDC2B protocol.
- Only one power supply is necessary to power both the local and remote units.

Configuration and Cable Illustration

HDMI Extender

HDMI Extender & Daisy-Chain Receivers
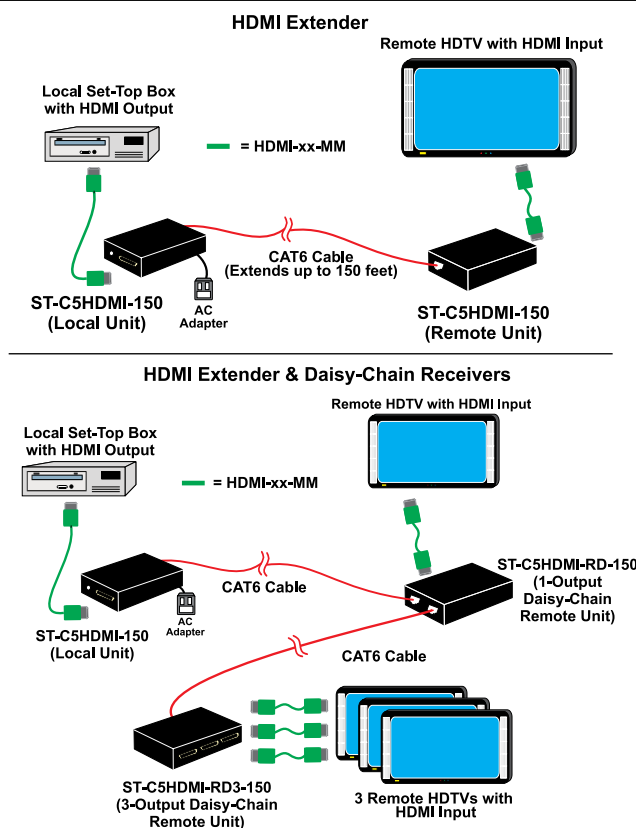
Specifications

Local Unit (Transmitter)

- One female HDMI-A port for source connection.
- One female RJ45 port for sending high definition video/audio signals and DDC signal.
- Signal type: HDMI 1.2, HDCP 1.1 compliant.

Remote Unit (Receiver)

- One female HDMI-A port for display.
- One female RJ45 port for receiving high definition video/audio signals and DDC signal.
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.
- Maximum extension is 200 feet using CAT7 solid 600 MHz STP cable, and 150 feet using CAT6 solid 550 MHz cable.

Optional Daisy-Chain Remote Unit (Receiver)

- One-output and three-output models available.
- Enables a daisy chain of five receivers at 1080p / eight receivers at 1080i/720p.
  - The three-output receiver supports three displays for a total of 15 displays at 1080p and 24 displays at 1080i.
- ST-C5HDMI-RD-150: one female HDMI-A port for HDTV or computer display.
- ST-C5HDMI-RD3-150: Three female HDMI-A ports for HDTVs or computer displays.
- One female RJ45 port for receiving high definition video/audio signals and DDC signal.
- One female RJ45 port for sending high definition video/audio signals and DDC signal.
- Only every third receiver in daisy-chain needs power supply.
- Maximum extension is 150 feet using CAT7 solid 600 MHz STP cable or CAT6 solid 550 MHz cable.

Power

- Local unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Remote unit: powered from local unit via CAT6/7 solid cable.
- Power Consumption: Local unit: 6W; Remote unit: powered from local unit.

Regulatory Approvals

- RoHS, CE, FCC

Cables

- Use HDMI-xx-MM cable to connect an HDMI source or display.
- CAT6 UTP solid 550 MHz or better cable with TIA/EIA-568B wiring terminated with standard RJ45 connectors is recommended for 1080p applications (not included).
  - Extension distances vary with resolution and quality of cable used.

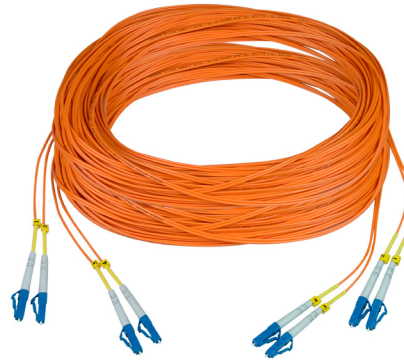| HDMI Extender Models	
NTI Part #	**Description**
ST-C5HDMI-150	HDMI Transmitter and Receiver
ST-C5HDMI-RD-150	One Output HDMI Daisy Chain Receiver
ST-C5HDMI-RD3-150	Three Output HDMI Daisy Chain Receiver

HDMI EXTENDER VIA FIBER OPTIC CABLE

Extend an HDMI display up to 5,000 feet (1,524 meters)

NEW

HDMI
4-Fiber

1920*1080P 60Hz
<Audio ON>

Power
Video
Audio
Edid sw

Fiber Optic HDMI Extension Module

Transmitter

ST-FOHDMI-LC Transmitter Unit

FIBER-2D-LCLC-50-xxM

DIGITAL SIGNAGE

Features & Applications

The XTENDEX® HDMI Extender via Fiber Optic Cable locates an HDMI display up to 5,000 feet (1,524 meters) from a video source using fiber optic cable. Each extender consists of a transmitter that connects to a video source and a receiver that connects to a display.

- Signal transmission via four strand multimode LC fiber optic cable — no RF interference.
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.
- HDCP compliant.
- LEDs indicate power, audio, and video connectivity status.
- LCD indicates status and resolution.
- Built-in default EDID configuration table.

- EDID learning for the support of any EDID compatible display device.
- Compact and durable design — allowing for easy connection and placement.
- Cables can be installed in conduit prior to extender installation.
- No software to install.
- RGB and Clock signals are transmitted separately by multimode optical fiber, no separate copper connection required.

Specifications

- Connectors (for transmitter and receiver): one female HDMI Type A connector and two duplex LC connectors.
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.
- Optical source: 850nm VCSEL.
- Compliant with HDMI 1.3 standard.
- Video Amplifier bandwidth: 165MHz.
- Data rate: 2.25 Gbps.

Environmental

- Operating Temperature: 14°F to 122°F (-10°C to 50°C).
- Storage Temperature: -22°F to 140°F (-30°C to 60°C).

Regulatory Approvals

- CE, FCC

Cables

- Use a FIBER-2D-LCLC-50-xxM (two duplex LC 50-micron) fiber optic cable to extend the receiver from the transmitter up to 5,000 feet (1,524 meters). Cable not included.
- Includes two 6-foot male to male HDMI cables to connect HDMI video source and display to the transmitter and receiver, other lengths available.
  - Supports up to 50 ft of HDMI cable on input and output.

Power

- Transmitter and receiver: 100 to 240 VAC at 50 or 60 Hz via AC adapter.
- Power consumption:
  - Transmitter: 2.65W
  - Receiver: 3.48W

Dimensions

- WxDxH (in): 5.4x4.7x1.0

Configuration and Cable Illustration
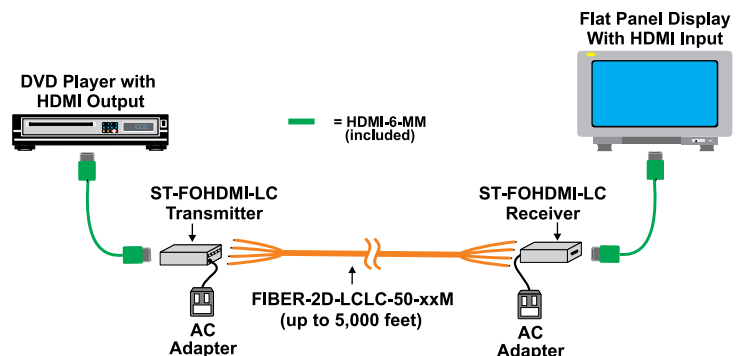
Flat Panel Display With HDMI Input

DVD Player with HDMI Output

= HDMI-6-MM (included)

ST-FOHDMI-LC Transmitter

ST-FOHDMI-LC Receiver

AC Adapter

FIBER-2D-LCLC-50-xxM (up to 5,000 feet)

AC Adapter

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DVI EXTENDER VIA SINGLE- / MULTI-MODE FIBER CABLE

Extend a single link digital DVI display up to 4,920 feet

Extends DVI display to 4,920 feet via singlemode fiber or 1,640 feet via multimode fiber cable

DVI → 2-Fiber

ST-2FODVI-LC Receiver* (Front & Back)
*The transmitter looks the same as the receiver

Extends DVI display to 3,280 feet via multimode fiber cables

DVI → 4-Fiber

ST-FODVI-LC Receiver* (Front & Back)
*The transmitter looks the same as the receiver

Features & Applications

The XTENDEX® ST-FODVI-LC locates a single link digital DVI display up to 3,280 feet from a computer using two duplex LC multimode fiber optic cables. The ST-2FODVI-LC locates a single link digital DVI display from a computer up to 4,920 feet using one duplex LC singlemode fiber optic cable and 1,640 feet using one duplex LC multimode fiber optic cable. The DVI extenders consist of a transmitter that connects to a computer and a receiver that connects to a display.

- Supports computer resolutions to 1920x1200 at 60 Hz.
- Small form factor – allowing for easy connection and placement.
- Cables can be installed in conduit prior to extender installation.
- EDID learning for the support of any DVI display device.

- Low RFI/EMI for sensitive applications.
  - For optimal data security protection, use glass optical fiber.
- No software to install.
- Ideal solution for digital signage applications.

Specifications

- Resolution: maximum up to 1920x1200 at 60 Hz.
  - ST-FODVI-LC: extend to 3,280 feet using multimode cable.
  - ST-2FODVI-LC: extend to 4,920 feet using singlemode cable and 1,640 feet using multimode cable.
- Connectors (for transmitter and receiver):
  - ST-FODVI-LC: one male dual link DVI-D connector and two sets of duplex LC connectors.
  - ST-2FODVI-LC: one male single link DVI-D connector and one set of duplex LC connectors.
- Video signal: single link digital DVI
- Optical source: 850nm VCSEL.
- PIN photo diode optical receiver.
- Compliant with DDWG DVI standard.

Power

- Local and remote unit: 110 to 240 VAC at 50 or 60 Hz via AC adapter.

Regulatory Approvals

- CE, FCC, RoHS

FIBER-D-LCLC-50-xxM

Environmental

- ST-FODVI-LC:
  - Operating Temperature: 32°F to 122°F (0°C to 50°C).
  - Storage Temperature: -4°F to 158°F (-20°C to 70°C).
  - Operating and Storage Relative Humidity: 10 to 80% non-condensing RH.
- ST-2FODVI-LC:
  - Operating temperature: 32°F to 122°F (0°C to 50°C).
  - Storage temperature: 14°F to 185°F (-10°C to 85°C).
  - Operating and Storage Relative Humidity: 5 to 85% non-condensing RH.

Cables

- ST-FODVI-LC:
  - Use a FIBER-2D-LCLC-50-xxM (two duplex multimode LC 50-micron fiber optic cables) to extend the receiver from the transmitter up to 3,280 feet (not included).
- ST-2FODVI-LC:
  - Use a FIBER-D-LCLC-50-xxM duplex multimode LC 50-micron fiber optic cable to extend the receiver from the transmitter up to 1,640 feet (not included).
  - Use a duplex singlemode LC 9-micron fiber optic cable to extend the receiver from the transmitter up to 4,920 feet (not included).
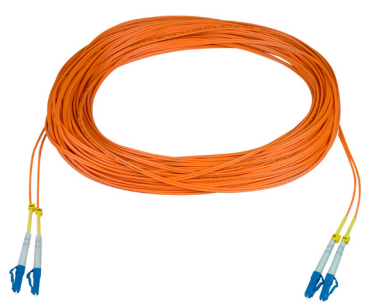
DVI Extender via Fiber Models

NTI Part #	Maximum Extension (ft.)	Cable Type	Fiber Count
ST-FODVI-LC	3,280	Multimode	4
ST-2FODVI-LC	4,920/1,640	Singlemode/Multimode	2

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DVI-D DUAL LINK EXTENDER VIA FIBER

Extend dual link digital DVI display up to 330 feet

DVI
7-Fiber

ST-FODVIDD-LC Remote and Local Units

Features & Applications

The XTENDEX® DVI-D Dual Link Extender via Fiber Optic Cable extends a digital flat panel display up to 330 feet from a dual link digital DVI video source using fiber optic cable. Each DVI extender consists of a transmitter that connects to a computer and a receiver that connects to a monitor.

- Supports single link and dual link by selectable function switcher.
  - Supports 2560x1600 QXGA resolution for dual link devices.
  - Supports 1920x1200 WUXGA resolution for single link devices.
  - Supports HDTV resolutions to 1080p.
- Transmits digital DVI signal over 7-strand multimode LC fiber optic cable.

- Supports two DDC modes.
  - Real mode: uses one CAT5 cable for DDC.
  - Emulation: pseudo-DDC detection function for EDID (extended display identification data) information.

Specifications

Connectors (Transmitter and Receiver)

- One female DVI-I dual link connector.
  - Video signal: dual link digital DVI
- One female RJ45 connector.
- Eight duplex LC connectors.

Dimensions

- WxDxH (in): 7.1x3.5x1.2 (each – local and remote unit)

Power

- Local and remote unit: 110 to 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 1.5W (each – local and remote unit)

Cables

- Use two FIBER-2D-LCLC-50-xxM (two duplex LC 50-micron) multimode fiber optic cables to extend the receiver from the transmitter up to 330 feet (not included).
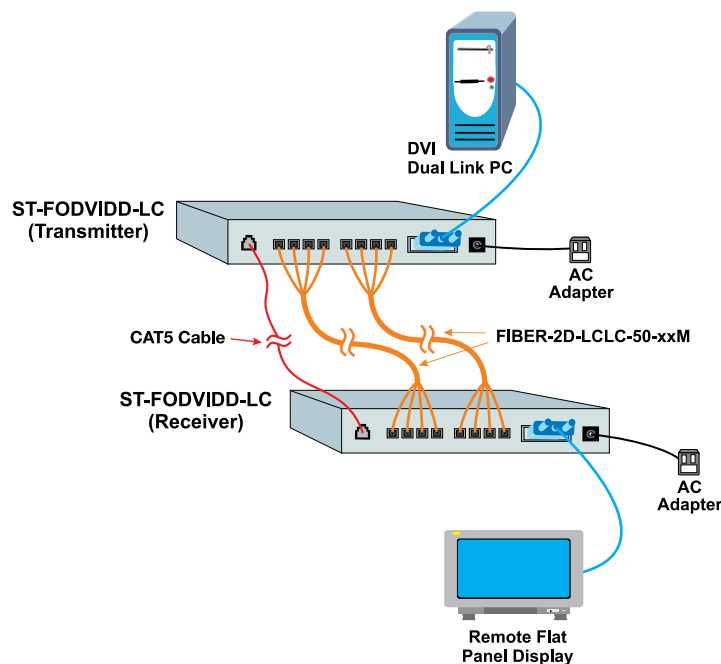- Use one CAT5 cable connected between the transmitter and receiver for DDC (not included).

Environmental

- Operating temperature: -32°F to 122°F (0°C to 50°C).
- Storage temperature: -4°F to 158°F (-20°C to 70°C).

Regulatory Approvals

- RoHS

Configuration and Cable Illustration

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DVI-D AND HDMI FIBER OPTICAL / COPPER CABLES

Extend a single link digital DVI or HDMI display up to 328 feet

DVI-FO-33-MM

DIGITAL SIGNAGE

HDMI-FO-33

DVI-DS-33-MM

Features & Applications

Locate a single link digital DVI display or HDMI display up to 328 feet from a video source using the DVI-FO-xx-MM DVI-D Fiber Optical Extension Cable or the HDMI-FO-xx HDMI Fiber Optical Extension Cable. These cables are an integrated cable solution, which includes the fiber optics components and the DDC signals built into the cable and the connectors.

- High speed and long distance transmission by optical system.
- No loss of signal – delivering crystal clear digital images instantly.
- RGB and Clock signals are transmitted by optical fiber.
- DDC signal is transmitted by copper line.
- No external power required.
- Optical fibers immune to signal noise.
- Low RFI/EMI for sensitive applications.
- Perfect solution for cable runs that must be routed through walls and over ceilings.

- Ideal solution for many applications, including:
  - Digital signage
  - Medical imaging equipment
  - Airplane on-board video system
  - Home theater
  - TV broadcast station
  - Conference room video equipment

The DVI-DS-xx-MM DVI-D copper extension cable extends a single link digital DVI display up to 100 feet from a video source.

- High speed and long distance transmission by copper cable system.
- No loss of signal – delivering crystal clear digital images instantly.
- No external power required.

- Ideal for extending LCD monitors, HD televisions and DVI input projectors. Perfect for digital signage applications.

Specifications

DVI-D Fiber Optical Extension Cable DVI-FO-xx-MM

- Compatible with computers and video sources (satellite receivers, DVD players, etc) with DVI video.
- Signal type: single link digital DVI
- Connectors: male dual link DVI-D connectors.
- Supports computer resolutions to 1920x1440 and HDTV resolutions to 1080p.
- Compatible with DDWG DVI standard.
- Available lengths: 33/49/65/82/98/164/246/328 feet.
- Regulatory approvals: CE, FCC, RoHS

DVI-D Copper Extension Cables DVI-DS-xx-MM

- Compatible with computers and video sources (satellite receivers, DVD players, etc) with female DVI-D dual link output connectors.
  - Not compatible with MAC computers.
- Signal type: single link digital DVI
- Connectors: male dual link DVI-D connectors.
- Supports computer resolutions to 1900x1200.
- Compatible with DDWG DVI standard.
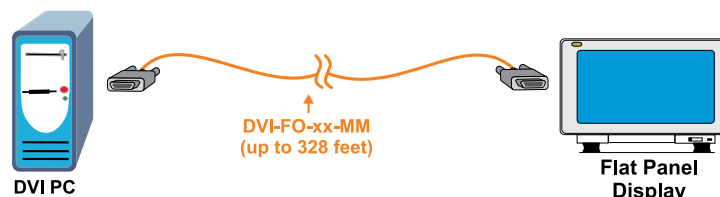- Available lengths: 33/65 feet.

HDMI Fiber Optical Extension Cable HDMI-FO-xx

- Compatible with computers and video sources with HDMI outputs.
  - Not compatible with MAC computers.
- Signal type: HDMI 1.3.
- Connectors: one female HDMI Type A connector, one male HDMI Type A connector on attached one-foot cable.
- Supports computer resolutions to 1900x1200 and HDTV resolutions to 1080p.
- Available lengths: 33/49/65/82/98/131/164/246/328 feet.

Environmental

- Operating Temperature: 32°F to 122°F (0°C to 50°C).
- Storage Temperature: -4°F to 158°F (-20°C to 70°C).

Configuration and Cable Illustration

DVI PC

DVI-FO-xx-MM (up to 328 feet)

Flat Panel Display

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Extend a S-Video TV/monitor up to 600 feet away from a S-Video device

Available option:

- **Audio**

Built-In Surge Protection

DIGITAL SIGNAGE

XTENDEX® ST-C5SV-600 (Remote and Local Units)

Features & Applications

The XTENDEX® S-Video Extender transmits S-Video locally and remotely up to 600 feet away from a S-Video device using CAT5/5e/6 cable. Each video extender consists of a local unit connected to a S-Video device and a local monitor, and a remote unit connected to a monitor or TV.

- Ideal solution for digital signage applications.
- Supports maximum 800x600 S-Video resolution.
- Built-in surge protection.
- Supports local and remote S-Video display.

- Available with optional stereo audio.
- Use in-house CAT5/5e/6 phone wiring to locate a display remotely.
- Optional VESA mounting bracket is available for mounting the remote unit to the back of a flat panel monitor. See page 27 for specifications.

Specifications

Local Unit

Host Connection

- Supports computers and video devices with S-Video output.
- Male 4-pin miniDIN connector.
- Optional stereo audio support – dual RCA audio plugs.

Local Access

- Crisp and clear 800x600 video resolution.
- Female 4-pin miniDIN connector for local display.
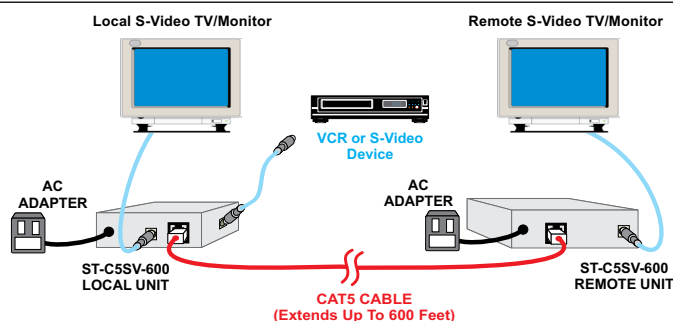- Optional stereo audio support – 3.5mm stereo jack.

Remote Unit

- Crisp and clear 800x600 resolution at 600 feet.
- Female 4-pin miniDIN connector.
- Optional 3.5mm stereo audio connection.

MTBF			
NTI Part #	**Hours**	**NTI Part #**	**Hours**
ST-C5SV-L-600 (local)	95,866	ST-C5SV-R-600 (remote)	84,040
ST-C5SVA-L-600 (local)	92,987	ST-C5SVA-R-600 (remote)	86,077

Configuration and Cable Illustration

Local S-Video TV/Monitor

Remote S-Video TV/Monitor

VCR or S-Video Device

AC ADAPTER

AC ADAPTER

ST-C5SV-600 LOCAL UNIT

ST-C5SV-600 REMOTE UNIT

CAT5 CABLE (Extends Up To 600 Feet)

Cables

- Use CAT5, CAT5e or CAT6 UTP straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors.
- Cables not included.

Video Quality Adjustment

- Video quality adjustment for different lengths of CAT5/5e/6 cable is done manually for the video-only extender and automatically for the audio/video.
- Push buttons on the side adjust video quality on the video-only units.
  - The setting is automatically saved to the unit. The next time the unit is powered the adjustment will be recalled.

Power

- Local and remote unit: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 10W (each – local and remote unit)

Regulatory Approvals

- CE, RoHS

Audio Option

- Stereo audio can be heard both locally and remotely.
- Frequency response: 20 Hz to 20 kHz, ±1 dB.
- Signal-to-Noise Ratio (SNR): >72 dBA.
- Total Harmonic Distortion and Noise (THD+N): <0.06%.
- Stereo crosstalk: -70 dB.
- Input impedance: 10k Ohms.
- Line level output; supports multimedia speakers.
  - CD quality audio output.
- Maximum I/O levels: 3.1Vp-p (line level).
- Requires powered speakers.

S-Video Extender Models		
Supported Features	**NTI Part #**	**Local and Remote Unit Sizes WxDxH (in)**
S-Video only	ST-C5SV-600	3.5x3.1x1.2
S-Video + audio	ST-C5SVA-600	3.5x3.1x1.2

CAUTION

Not an Ethernet device. Do not connect to an Ethernet device (card, router, switch, bridge). Permanent damage to the product or Ethernet device may result.

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25

COMPONENT VIDEO EXTENDER

Extend a HDTV display and speakers up to 600 feet from a YPbPr component video source

Available Models:

- **Component Video with Digital Audio**
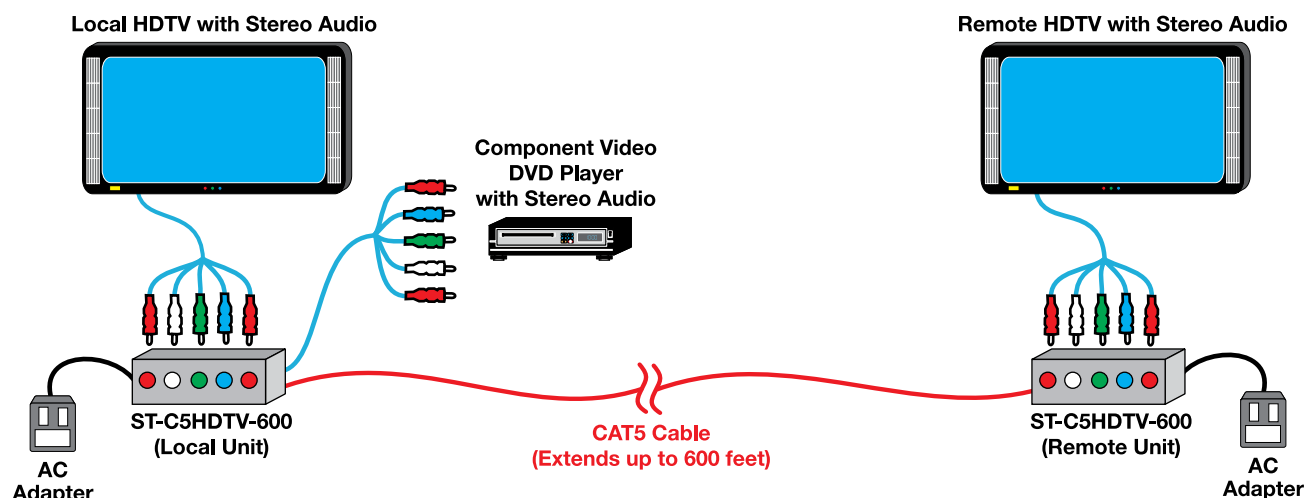- **Component Video with Stereo Audio**

DIGITAL SIGNAGE

XTENDEX® ST-C5HDTV-600 (Remote and Local Unit)

Features & Applications

The XTENDEX® Component Video Extender transmits YPbPr component video and analog or digital audio up to 600 feet away from a component video device (DVD, satellite receiver, etc) using CAT5/5e/6 cable. Each video extender consists of a local unit that connects to a component video device and also supplies audio/video to a local display and speakers, and a remote unit that connects to a display and speakers.

- Ideal solution for digital signage applications.
- Supports local and remote TVs/monitors/projectors and speakers.
- Supports HDTV resolutions to 1080p.
- Audio can be left and right stereo or digital S/PDIF.
   - ST-C5HDA-600 supports coax S/PDIF, DTS Digital Surround™, and Dolby Digital™ 5.1 digital signals.
   - ST-C5HDTV-600 supports analog stereo audio.
- High quality, rugged steel construction with durable powder coat finish.

- Easily transmit a high-definition component video signal to a projector mounted to the ceiling by using compact CAT5/5e/6 cable instead of bulky cable bundles.
- Send high quality video signals from the DVD player in your basement to the great room upstairs.
- Built-in surge protection.
- Optional VESA mounting bracket is available for mounting the remote unit to the back of a flat panel monitor.

Configuration and Cable Illustration of ST-C5HDA-600

Local HDTV with Stereo Audio

Remote HDTV with Stereo Audio

Component Video DVD Player with Stereo Audio

ST-C5HDTV-600 (Local Unit)

AC Adapter

CAT5 Cable (Extends up to 600 feet)

ST-C5HDTV-600 (Remote Unit)

AC Adapter

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Extend a HDTV display and speakers up to 600 feet from a YPbPr component video source

Specifications

Local Unit

Source Connection

- ST-C5HDA-600: three RCA plugs for YPbPr component video and one RCA plug for digital audio.
- ST-C5HDTV-600: three RCA plugs for YPbPr component video and two RCA plugs for analog stereo audio.

Local Access

- ST-C5HDA-600: three RCA jacks for YPbPr component video and one RCA jack for digital audio.
- ST-C5HDTV-600: three RCA jacks for YPbPr component video and two RCA jacks for analog stereo audio.

Remote Unit

- ST-C5HDA-600: three RCA jacks for YPbPr component video and one RCA jack for digital audio.
- ST-C5HDTV-600: three RCA jacks for YPbPr component video and two RCA jacks for analog stereo audio.

Video

- Signal type: HDTV YPbPr component.
- Maximum input/output levels: 1.45Vp-p.
- Input/output impedance: 75 Ohms.
- Bandwidth: 90Mhz at 100 feet, 50Mhz at 600 feet.
- Resolutions: HDTV 480i, 480p, 720i, 720p, 1080i, and 1080p.

Video Quality Adjustment

- Automatically adjusts the video quality to compensate for varying lengths of CAT5/5e/6 cable.

Optional VESA Mounting Bracket

- Use to mount the remote unit to the back of a flat panel monitor.
- Compliant to VESA 75mm and 100mm mounting hole patterns.
- Dimensions WxH (in): 9.7x4.8
- Compatible with the remote unit only.

Remote unit mounted to the back of a flat panel monitor using ST-C5MK-VESA mounting kit

Audio

- Audio can be left and right stereo or digital coax S/PDIF.
- Audio can be heard both locally and remotely.
- CD quality audio output.

Digital Audio (ST-C5HDA-600)

- Signal type: coax S/PDIF, DTS Digital Surround™, Dolby Digital™ 5.1.
- Input/output levels: 0.5Vp-p.
- Input/output impedance: 75 Ohms.

Stereo Audio (ST-C5HDTV-600)

- Signal type: stereo audio, analog, left/right.
- Maximum input/output levels: 3.1Vp-p.
- Input impedance: 10K Ohms.
- Line level output, maximum load: 2K Ohms.
- Frequency Response: ±1 dB, 20 Hz to 20 kHz.
- Total Harmonic Distortion + Noise (THD+N): <0.06%.
- Signal-to-Noise Ratio (SNR): >72 dBA.
- Stereo crosstalk: -70 dB.

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.

Power

- Local and remote units: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 10W (each – local and remote unit).

Regulatory Approvals

- CE, RoHS

MTBF			
NTI Part #	MTBF (hrs)	NTI Part #	MTBF (hrs)
ST-C5HDA-L-600 (local)	91,308	ST-C5HDA-R-600 (remote)	84,065
ST-C5HDTV-L-600 (local)	77,426	ST-C5HDTV-R-600 (remote)	83,389

Component Video Extender Models		
Supported Features	NTI Part #	Size WxDxH (in)
HDTV component video + digital audio	ST-C5HDA-600	3.5x3.1x1.2
HDTV component video + stereo audio	ST-C5HDTV-600	3.5x3.1x1.2

CAUTION

Not an Ethernet device. Do not connect to an Ethernet device (card, router, switch, bridge). Permanent damage to the product or Ethernet device may result.

XTENDEX®

www.networktechinc.com/hdtv-extend.html
www.networktechinc.com/hdtv-extend-digital.html

RACKMOUNT EXTENDERS

Mount up to 12 extender modules into a single 2RU rack tray: USB KVM, PS/2 KVM, VGA

XTENDEX® ST-C5RCK-12 with Extender Modules (Front)

Features & Applications

The XTENDEX® Rackmount Extender Module Tray allows you to mount up to 12 extender modules in a space-saving 2RU shelf. The local and remote extender modules are interconnected via CAT5/5e/6 cable.

- Designed for use with NTI's rackmount transmitter / receiver modules.
  - Rackmount local module compatible with rackmount remote module or desktop remote unit.
- Mount up to 12 modules in a single 2RU tray.
  - Decreased downtime due to easy replacement of extender modules.
  - Single point of failure does not require sending all units back with the ST-C5RCK-12 Rackmount Module Tray.
  - Separate single unit (local and remote) pricing allows for affordable replacements to be kept on site in case of failure.
- Cable/power supply management shelf included.

- Includes eleven blank front panel covers.
  - Hides open slots on the tray.
  - Prevents change in airflow through rack cabinets.
- Ideal solution for fast-growing installations.
- Available extender modules:
  - VGA USB KVM extender to 300 feet with optional audio.
  - VGA PS/2 KVM extender to 600 feet with optional audio or RS232.
  - VGA video extender to 600 feet with optional audio or RS232.
- High quality, rugged steel construction with durable powder coat finish.
- Optional power distribution module allows you to power up to 12 rackmount extender modules.

Specifications

Rackmount Extender Module Tray

Dimensions

- Rack shelf WxDxH (in): 19x14.5x3.5
- Blank panel cover WxH (in): 1.4x3.5
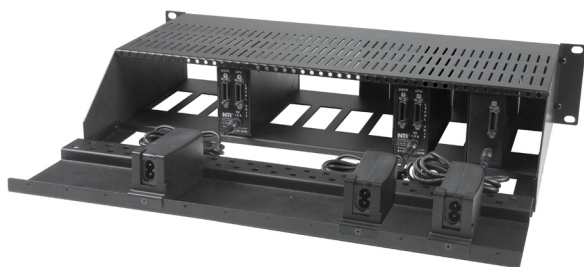
2RU Rackmount Extender Module Tray with included Cable/Power Supply Management Shelf (Back)

ST-C5USBV-L-300M (Front & Back)

Rackmount Extender Modules

VGA USB KVM Extender to 300 Feet

- Supports resolutions to 1920x1440.
- Available with optional audio.
- See page 10-11 for specifications.

VGA PS/2 KVM Extender to 600 Feet

- Supports resolutions to 1920x1440.
- Available with optional audio or RS232.
- See pages 6-7 for specifications.

VGA Video Extender to 600 Feet

- Supports resolutions to 1920x1440.
- Available with optional audio or RS232.
- See pages 4-5 for specifications.

Connectors

- Local unit:
  - One female 26-pin SCSI II connector for computer connection.
  - One female 26-pin SCSI II connector for local KVM access (for KVM models) or local display (for video-only models).
  - One female RJ45 connector for CAT5/5e/6 cable to remote unit.
- Remote unit:
  - One female 26-pin SCSI II connector for remote KVM access (for KVM models) or remote display (for video-only models).
  - One female RJ45 connector for CAT5/5e/6 cable from local unit.
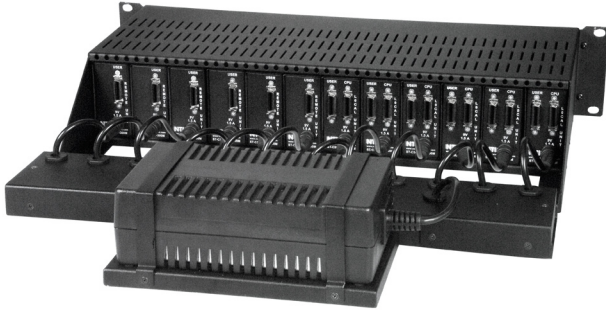
Dimensions

- WxDxH (in): 1.4x6.8x3.5

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Mount up to 12 extender modules into a single 2RU rack tray: USB KVM, PS/2 KVM, VGA

Optional Power Distribution Module

- Power up to 12 Rackmount Extender Modules.
- Outputs +9VDC

2RU Rackmount Extender Module Tray with Optional Power Distribution Module (Back)

Configuration and Cable Illustration

2RU Rackmount Extender Module Tray	
NTI Part #	**Description**
ST-C5RCK-12	2RU Rackmount Extender Module Tray
ST-C5PWR-RCK12	Power Distribution Module

VGA PS/2 KVM Extender Modules to 600 feet			
Supported Features	**Local or Remote**	**Rackmount or Desktop**	**NTI Part #**
KVM	Local	Rackmount	ST-C5KVM-L 600M
	Remote	Rackmount	ST-C5KVM-R-600M
	Remote	Desktop	ST-C5KVM-R-600
KVM + Audio	Local	Rackmount	ST-C5KVMA-L-600M
	Remote	Rackmount	ST-C5KVMA-R-600M
	Remote	Desktop	ST-C5KVMA-R-600
KVM + RS232	Local	Rackmount	ST-C5KVMRS-L-600M
	Remote	Rackmount	ST-C5KVMRS-R-600M
	Remote	Desktop	ST-C5KVMRS-R-600

VGA Video Extender Modules to 600 feet			
Supported Features	**Local or Remote**	**Rackmount or Desktop**	**NTI Part #**
VGA	Local	Rackmount	ST-C5V-L-600M
	Remote	Rackmount	ST-C5V-R-600M
	Remote	Desktop	ST-C5V-R-600
VGA + Audio	Local	Rackmount	ST-C5VA-L-600M
	Remote	Rackmount	ST-C5VA-R-600M
	Remote	Desktop	ST-C5VA-R-600
VGA + RS232	Local	Rackmount	ST-C5VRS-L-600M
	Remote	Rackmount	ST-C5VRS-R-600M
	Remote	Desktop	ST-C5VRS-R-600

VGA USB KVM Extender Modules to 300 feet			
Supported Features	**Local or Remote**	**Rackmount or Desktop**	**NTI Part #**
KVM	Local	Rackmount	ST-C5USBV-L-300M
	Remote	Rackmount	ST-C5USBV-R-300M
	Remote	Desktop	ST-C5USBV-R-300
KVM + Audio	Local	Rackmount	ST-C5USBVA-L-300M
	Remote	Rackmount	ST-C5USBVA-R-300M
	Remote	Desktop	ST-C5USBVA-R-300

Cables

- NTI High Density cables between user devices and the XTENDEX Extender Modules are required for proper operation.
- NTI High Density cables between the CPUs and the XTENDEX Extender Modules are required for proper operation.
- Use CAT5, CAT5e or CAT6 UTP straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors between the local and remote units.
- Cables not included.
- Refer to www.networktechinc.com/extender-rack.html for high density cables compatible with the Extender Modules.

CAUTION

Not an Ethernet device. Do not connect to an Ethernet device (card, router, switch, bridge). Permanent damage to the product or Ethernet device may result.

XTENDEX®

www.networktechinc.com/extender-rack.html

VGA VIDEO/AUDIO SPLITTER/EXTENDER VIA CAT5

Drive up to 16 monitors and speakers 600 feet away from one computer

Built-In Surge Protection

DIGITAL SIGNAGE

VOPEX-C5VA-16 Local Unit (Front and Back) and ST-C5VA-R-600 Remote Unit

Features & Applications

The VOPEX® VGA Video Splitter/Extender simultaneously broadcasts high-resolution video from one computer to 4, 8 or 16 remote monitors located up to 600 feet away using CAT5/5e/6 cable. Optional audio functionality using self-powered stereo speakers enhances presentations.

The VOPEX VGA video splitter/extender system has two components: the VOPEX-C5V-x VGA broadcast unit, which connects to the host computer and also supplies video to a local monitor, and an XTENDEX® ST-C5V-R-600 remote unit for each remote monitor. The units are interconnected by CAT5/5e/6 cable.

- Broadcast real-time VGA video or audio/video to multiple display locations.
- Supports resolutions up to 1920x1440.
- Optional audio can be broadcast to self-powered stereo speakers at the local unit and each remote location.
- Easily expandable. Add remote units as you add monitors.
- A pure hardware solution – no software conflicts.

- High quality rugged steel construction with durable powder coat finish.
- Available in optional rackmount enclosure.
  - Includes cable management shelf.
- Ideal for digital signage, movie theater lobbies, point of purchase displays, conference centers, airports, and other applications that require multiple displays.

Specifications

Local Unit

Video Input

- Supports a PC, SUN or MAC with VGA video.
- Male 15-pin HD connector.
- Input frequency ranges:
  - Horizontal: 15 kHz to 130 kHz.
  - Vertical: 30 Hz to 150 Hz
- Supports Separate and Composite TTL level sync and Sync on Green.
- Input impedance: 75 Ohms.
- Maximum input levels: 1.45 p-p.
- Video is DC coupled.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.

Power Consumption

Model	Watts	Model	Watts
VOPEX-C5V-4	5	VOPEX-C5VA-4	10
VOPEX-C5V-8	10	VOPEX-C5VA-8	10
VOPEX-C5V-16	10	VOPEX-C5VA-16	10

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.

Video Output

- Female RJ45 connectors for CAT5/5e/6 cable to remote units.
- Female 15-pin HD connector for local monitor.
- Crisp and clear 1920x1440 video resolution.
- Output impedance: 75 Ohms.
- Maximum output level: 1.45Vp-p

Optional Audio

- 3.5mm female stereo audio jacks.
- Frequency response: 20 Hz to 20 kHz, ±1 dB.
- Signal-to-Noise Ratio (SNR): 76 dBA.
- Total Harmonic Distortion and Noise (THD+N): 0.017%
- Stereo Crosstalk: -70 dB.
- Input impedance: 10k Ohms.
- Line level output; supports multimedia speakers.
  - CD quality audio output.
- Maximum I/O levels for audio: 3.1 Vp-p (line level).

MTBF

NTI Part #	Hours	NTI Part #	Hours
VOPEX-C5V-4	76,044	VOPEX-C5VA-4	69,352
VOPEX-C5V-8	72,008	VOPEX-C5VA-8	65,509
VOPEX-C5V-16	56,244	VOPEX-C5VA-16	49,918

Regulatory Approvals

- CE, RoHS

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Drive up to 16 monitors and speakers 600 feet away from one computer

Specifications (Continued)

Remote Unit

Video Output

- Female 15-pin HD connector.
- Supports resolutions up to 1920x1440; refer to the resolution chart below for resolutions at different lengths.
  - When using CAT6 cable, some degradation may be experienced, depending on the construction of the cable.
- Output impedance: 75 Ohms.
- Maximum output level for video: 1.45Vp-p.
- Video quality adjustment for different lengths of CAT5/5e/6 cable is done manually for video-only units and automatically for audio/video units.

Optional Audio

- 3.5mm stereo audio jack.
- Frequency response: 20 Hz to 20 kHz, ±1dB.
- Signal-to-Noise Ratio (SNR): 76 dBA.
- Total Harmonic Distortion and Noise (THD+N): 0.017%.
- Stereo crosstalk: -70 dB.
- Line level output; supports multimedia speakers.
  - CD quality audio output.
- Maximum output levels: 3.1Vp-p (line level).

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 10W

MTBF

- ST-C5V-R-600: 89,155 hrs
- ST-C5VA-R-600: 87,915 hrs

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

Distances and Resolutions for CAT5/CAT5e and CAT6 Cables		
Cable	Distance (feet)	Resolution
CAT5/CAT5e (UTP)	600	1024x768 at 60Hz
	400	1280x1024 at 60Hz
	300	1600x1200 at 60Hz
	100	1920x1440 at 60Hz
CAT5/CAT5e(STP,) CAT6 (UTP)	300	1024x768 at 60Hz
	200	1280x1024 at 60Hz
	100	1920x1440 at 60Hz

CAUTION

Not an Ethernet device. Do not connect to an Ethernet device (card, router, switch, bridge). Permanent damage to the product or Ethernet device may result.

Configuration and Cable Illustration
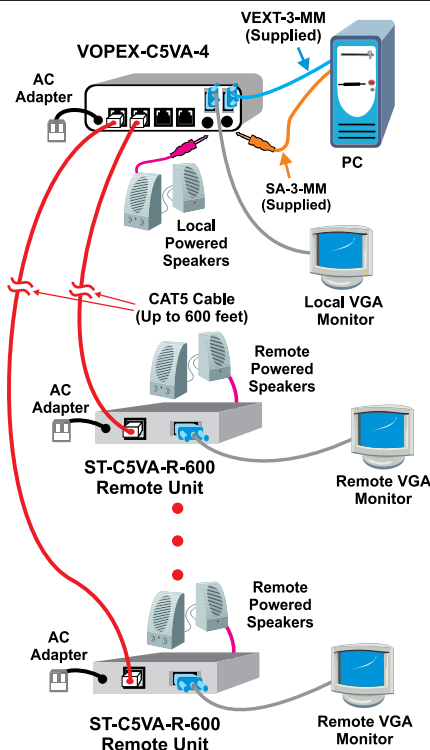
Cables

- 3-foot VGA cable included.
- 3-foot audio cable included with units with audio option.
- Use CAT5, CAT5e or CAT6 straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors (not included).

Desktop VGA Splitter / Extender via CAT5 Models				
Supported Features	Local or Remote	NTI Part #	# of ports	Local Unit Size WxDxH (in)
VGA Video	Local	VOPEX-C5V-4	4	5.1x3.5x1.1
	Local	VOPEX-C5V-8	8	5.1x3.5x1.7
	Local	VOPEX-C5V-16	16	8.5x6.0x2.5
	Remote	ST-C5V-R-600	NA	3.5x3.1x1.2
Video + Audio	Local	VOPEX-C5VA-4	4	5.1x3.5x1.1
	Local	VOPEX-C5VA-8	8	5.1x3.5x1.7
	Local	VOPEX-C5VA-16	16	8.5x6.0x2.5
	Remote	ST-C5VA-R-600	NA	3.5x3.1x1.2

Rackmount VGA Splitter / Extender via CAT5 Models				
Supported Features	Local or Remote	NTI Part #	# of ports	Local Unit Size WxDxH (in)
VGA Video	Local	VOPEX-C5V-4R	4	19x10.5x1.75
	Local	VOPEX-C5V-8R	8	19x10.5x1.75
	Local	VOPEX-C5V-16R	16	19x10.5x1.75
	Remote	ST-C5V-R-600	NA	3.5x3.1x1.2
Video + Audio	Local	VOPEX-C5VA-4R	4	19x10.5x1.75
	Local	VOPEX-C5VA-8R	8	19x10.5x1.75
	Local	VOPEX-C5VA-16R	16	19x10.5x1.75
	Remote	ST-C5VA-R-600	NA	3.5x3.1x1.2

VOPEX®

www.networktechinc.com/vga-extender.html

COMPONENT VIDEO SPLITTER/EXTENDER VIA CAT5

Play the same image and audio on multiple HDTV displays and speakers up to 600 feet away

Features & Applications

The VOPEX® HDTV Audio/Video Splitter/Extender simultaneously broadcasts high resolution YPbPr component video signals along with analog or digital audio signals to up to 16 displays and speakers via CAT5/5e/6 cable. The VOPEX system has two components: the local broadcast unit, which connects to the YPbPr component video device and also supplies audio/video to a local display and speakers, and a remote unit for each remote display and speakers. The units are interconnected by CAT5/5e/6 cable up to 600 feet.

- Broadcast real-time HDTV YPbPr component video and analog stereo audio or digital audio to multiple locations.
- Supports HDTV resolutions to 1080p with no image degradation.
- All audio/video inputs and outputs have RCA cable connectors.

VOPEX-C5HDTV-16 (Front & Back) and ST-C5HDTV-R-600 Remote Unit

Specifications

Local Unit

Video

- Female RCA input and output connectors.
- Signal type: HDTV YPbPr component.
- Maximum input/output levels: 2Vp-p.
- Input/output impedance: 75 Ohms.
- Video crosstalk: <-60dB.
- Video gain: unity.
- Bandwidth: 90Mhz at 100 feet, 50Mhz at 600 feet.
- Supports HDTV resolutions to 1080p.

Audio

- Female RCA connectors.
- Audio can be left and right stereo (RCA) or digital S/PDIF (coax).
- CD quality audio output.

Digital Audio (VOPEX-C5HDA-x)

- Signal type: coax S/PDIF, DTS Digital Surround™, Dolby Digital™ 5.1.

Stereo Audio (VOPEX-C5HDTV-x)

- Signal type: stereo audio, analog, left/right.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter

Dimensions

- WxDxH (in): 8.5x6.0x2.5

Regulatory Approvals

- CE, RoHS

Remote Unit

Video

- Female RCA connectors.
- Signal type: HDTV YPbPr component.
- Maximum output level: 1.45Vp-p.
- Output impedance: 75 Ohms.
- Supports HDTV resolutions to 1080p.

Audio

- Audio can be left and right stereo or digital S/PDIF.
- Female RCA connectors.

Digital Audio (ST-C5HDA-R-600)

- Use ST-C5HDA-R-600 with VOPEX-C5HDA-x.
- Signal type: coax S/PDIF, DTS Digital Surround™, Dolby Digital™ 5.1.

Stereo Audio (ST-C5HDTV-600)

- Use ST-C5HDTV-600 with VOPEX-C5HDTV-x.
- Signal type: stereo audio, analog, left/right.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 10W

Dimensions

- WxDxH (in): 3.5x3.1x1.2

Regulatory Approvals

- CE, RoHS

Component Video Splitter/Extender with Digital Audio Models		
NTI Part #	Local or Remote	# of ports
VOPEX-C5HDA-4	Local	4
VOPEX-C5HDA-8	Local	8
VOPEX-C5HDA-16	Local	16
ST-C5HDA-R-600	Remote	NA

Component Video Splitter/Extender with Stereo Audio Models		
NTI Part #	Local or Remote	# of ports
VOPEX-C5HDTV-4	Local	4
VOPEX-C5HDTV-8	Local	8
VOPEX-C5HDTV-16	Local	16
ST-C5HDTV-R-600	Remote	NA

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Drive up to 4 remote displays from one DVI video source

Features and Applications

The VOPEX® DVI Splitter/Extender simultaneously distributes high resolution single link DVI video from one computer to up to four displays located up to 300 feet away using CAT5e/6 cable. The VOPEX system consists of two components: the DVI broadcast unit, which connects to the host video source and also supplies video to a local display, and a remote unit for each remote display. The units are interconnected by CAT5e/6 solid cable.

- Broadcast real-time DVI video to multiple display locations.
- Supports crisp and clear resolutions to 1920x1200.
- Compliant with DDWG DVI standard.
- Ideal solution for digital signage applications.

VOPEX-C5DVI-4 Local Unit (Front & Back) and ST-C5DVI-R-220 Remote Unit

Specifications

Local Unit

Video

- Female DVI-I input and output connectors.
- Signal type: single link digital DVI
- Four female RJ45 ports for video extension; one to each remote unit.
- Supports resolutions to 1920x1200
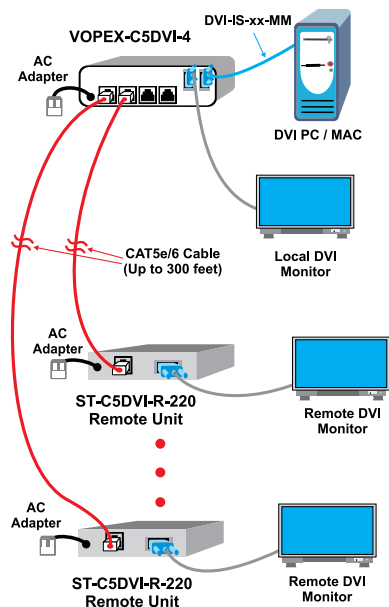- Compliant with DDWG DVI standard.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.

Dimensions

- WxDxH (in): 5x4x1

Configuration and Cable Illustration

Remote Unit

Video

- One female DVI-I connector for display.
- One female RJ45 port for receiving DVI signal from local unit.
- Supports resolutions to 1920x1200
- Compliant with DDWG DVI standard.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.

Dimensions

- WxDxH (in): 2.9x3.6x1

Distances and Resolutions for CAT5e/CAT6 Cables

Cable	Distance (feet)	Maximum Standard Resolution
CAT5e Solid UTP	100	1920x1200 at 60Hz
	Longer Length Not Recommended	
CAT5e Solid UTP	100	1920x1200 at 60Hz
	Longer Length Not Recommended	
CAT6 Solid UTP	100	1920x1200 at 60Hz
	Longer Length Not Recommended	
CAT6 Solid UTP 550MHz	150	1920x1200 at 60Hz
	200	1280x1024 at 60Hz
	250	1024x768 at 60Hz
CAT6 Solid STP	100	1920x1200 at 60Hz
	200	1280x1024 at 60Hz
	300	800x600 at 60Hz

Cables

- Use DVI-IS-xx-MM male to male DVI-I cable to connect a DVI-D source or display. Cable not included
- Use DVI-HDMI-xx-MM cable to connect an HDMI source or display. Cable not included.
- Use CAT5e/6 solid straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors. Cables not included.
  - For best results, use CAT6 UTP solid 550 MHz cable or CAT6 STP solid cable.
  - Refer to the resolution chart above for resolutions at different lengths.

DVI Splitter/Extender via CAT5e/6

Local or Remote Unit	NTI Part #	# of Ports
Local	VOPEX-C5DVI-4	4
Remote	ST-C5DVI-R-220	NA

Note: Does not support HDCP

VOPEX®

www.networktechinc.com/dvi-splitter.html

HDMI SPLITTER/EXTENDER VIA CAT6

## Drive up to 4 remote displays from one HDMI video source

Features & Applications

The VOPEX® HDMI Splitter/Extender simultaneously distributes digital video and audio signals from one HDMI video source to up to four displays, each located up to 150 feet using a single CAT6 UTP cable. The VOPEX system consists of two components: the HDMI broadcast unit, which connects to the video source and also supplies video to a local display, and a remote unit for each remote display.

- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.
- Compliant with HDMI 1.2 and HDCP 1.1 standards.
- Optional one-output and three-output daisy-chain receivers allow you to extend multiple displays and to reach longer distances.
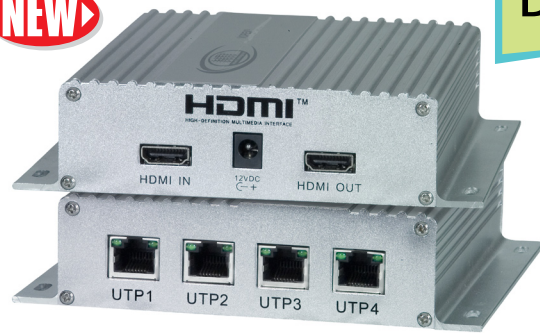
VOPEX-C5HDMI-4 Local Unit (Front & Back)

Specifications

Local Unit

Video Input

- Female HDMI-A input and output connectors.
- Four female RJ45 ports for video extension; one to each remote unit.
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.
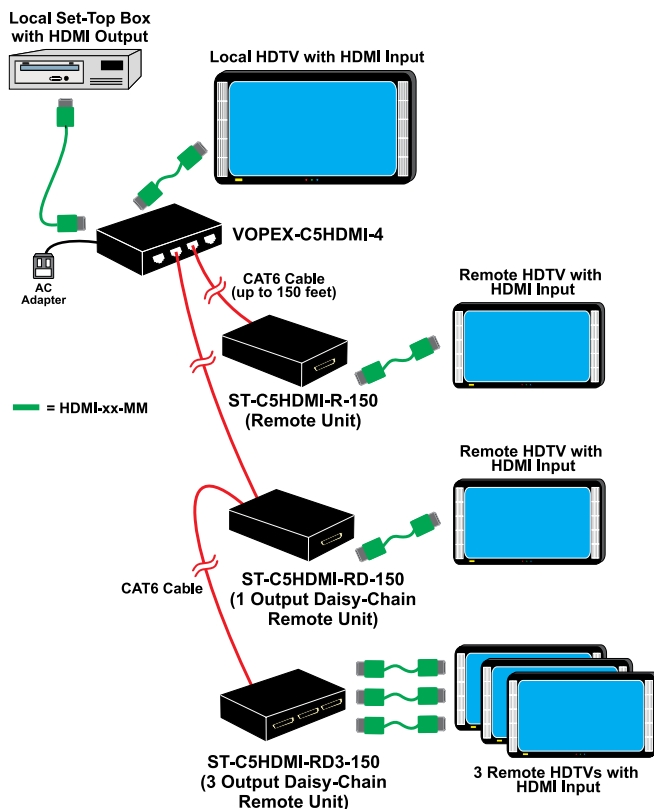- Signal type: HDMI 1.2, HDCP 1.1 compliant.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.

Dimensions

- WxDxH (in): 5x4.6x1.4

Configuration and Cable Illustration

Local Set-Top Box with HDMI Output

Local HDTV with HDMI Input

VOPEX-C5HDMI-4

AC Adapter

CAT6 Cable (up to 150 feet)

Remote HDTV with HDMI Input

= HDMI-xx-MM

ST-C5HDMI-R-150 (Remote Unit)

Remote HDTV with HDMI Input

CAT6 Cable

ST-C5HDMI-RD-150 (1 Output Daisy-Chain Remote Unit)

ST-C5HDMI-RD3-150 (3 Output Daisy-Chain Remote Unit)

3 Remote HDTVs with HDMI Input

Remote Unit

Remote Unit

- One female HDMI-A connector for display.
- One female RJ45 port for receiving high definition video/audio signals and DDC signal.
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.

Optional Daisy-Chain Remote Unit (Receiver)

- One-output and three-output daisy-chain models available.
- Enables a daisy-chain of five receivers at 1080p / eight receivers at 1080i/720p.
  - The three-output receiver supports three displays for a total of 15 displays at 1080p and 24 displays at 1080i.
- ST-C5HDMI-RD-150: one female HDMI-A port for display.
- ST-C5HDMI-RD3-150: Three female HDMI-A ports for displays.
- One female RJ45 port for receiving high definition video/audio signals and DDC signal.
- One female RJ45 port for sending high definition video/audio signals and DDC signal.
- Only every third receiver in daisy-chain needs power supply.

Cables

- Use HDMI-xx-MM cable to connect an HDMI source or display.
- CAT6 UTP solid 550 MHz or better cable with TIA/EIA-568B wiring terminated with standard RJ45 connectors is recommended for 1080p applications (not included).
  - Maximum extension is 150 feet using CAT7 solid 600 MHz STP cable or CAT6 solid 550 MHz cable.
  - Extension distances will vary with the resolution and quality of the cable used.

HDMI Splitter/Extender via CAT6 Models			
NTI Part #	Local or Remote	# of ports	Local Unit Size WxDxH (in)
VOPEX-C5HDMI-4	Local	4 RJ45	5x4.6x1.4
ST-C5HDMI-R-150	Remote	NA	2.5x2.8x0.9
ST-C5HDMI-RD-150	Remote Daisy Chain	1 HDMI	3.9x3.2x1.4
ST-C5HDMI-RD3-150	Remote Daisy Chain	3 HDMI	5x4.7x1.4

S-VIDEO/AUDIO SPLITTER/EXTENDER VIA CAT5

Drive up to 16 remote S-Video TVs/monitors and speakers from one S-Video source

Features & Applications

The VOPEX® S-Video/Audio Splitter/Extender simultaneously broadcasts high-resolution video and audio from one S-Video source to up to 16 remote locations using CAT5/5e/6 cable. The splitter/extender system has two components: the S-Video broadcast unit, which connects to the host device and also supplies audio/video to a local display and speakers, and a remote unit for each remote display and speakers. The units are interconnected by CAT5/5e/6 cable up to 600 feet.

- Broadcast real-time S-Video or audio/video to multiple display locations.
- Optional audio can be broadcast to self-powered stereo speakers at the local unit and each remote location.
- Supports 800x600 S-Video resolution to 600 feet.

DIGITAL SIGNAGE

Built-In Surge Protection

VOPEX-C5SV-16 Local Unit (Front and Back) and ST-C5SV-R-600 Remote Unit

Specifications

Local Unit

Video Input

- Supports computers and video devices with S-Video output.
- Female 4-pin miniDIN connector.
- Input impedance: 75 Ohms.
- Maximum input levels for S-Video: 1.45 p-p.
- Video is DC coupled.

Video Output

- Female RJ45 connectors for CAT5/5e/6 cable to remote units.
- Female 4-pin miniDIN connector.
- 800x600 video resolution.
- Output impedance: 75 Ohms.
- Maximum output level for S-Video: 1.45Vp-p.

Optional Audio

- 3.5mm stereo audio jacks.
- Stereo audio can be heard both locally and remotely.
- Line level output; supports multimedia speakers.
  - CD quality audio output.
- Maximum I/O levels for audio: 3.1 Vp-p (line level).

Power

- 110 or 220 VAC at 50 or 60Hz via AC adapter.

Regulatory Approvals

- CE, RoHS

Cables

- 3-foot S-Video cable included.
- 3-foot audio cable included (with VOPEX-C5SVA-x).
- Use CAT5, CAT5e or CAT6 UTP straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors (not included).

Remote Unit

Video Output

- Crisp and clear 800x600 resolution to 600 feet.
- Female 4-pin miniDIN connector.
- Output impedance: 75 Ohms.
- Maximum output level: 1.45Vp-p.
- Video quality adjustment for different lengths of CAT5/5e/6 cable is done manually for video-only units and automatically for audio/video units.

Optional Audio

- Female 3.5mm stereo audio jack.
- Line level output; supports multimedia speakers.
  - CD quality audio output.
- Maximum output levels: 3.1Vp-p (line level).

Power

- 110 or 220 VAC at 50 or 60Hz via AC adapter.
- Power consumption: 10W

Regulatory Approvals

- CE, RoHS

S-Video Splitter/Extender via CAT5 Models				
Supported Features	Local or Remote	NTI Part #	# of ports	Size WxDxH (in)
S-Video	Local	VOPEX-C5SV-4	4	8.5x6.0x2.5
	Local	VOPEX-C5SV-8	8	8.5x6.0x2.5
	Local	VOPEX-C5SV-16	16	8.5x6.0x2.5
	Remote	ST-C5SV-R-600	NA	3.5x3.1x1.2
S-Video + Audio	Local	VOPEX-C5SVA-4	4	8.5x6.0x2.5
	Local	VOPEX-C5SVA-8	8	8.5x6.0x2.5
	Local	VOPEX-C5SVA-16	16	8.5x6.0x2.5
	Remote	ST-C5SVA-R-600	NA	3.5x3.1x1.2

CAUTION

Not an Ethernet device. Do not connect to an Ethernet device (card, router, switch, bridge). Permanent damage to the product or Ethernet device may result.

VGA VIDEO MATRIX SWITCH

Switch video from many computers among multiple monitors

VEEMUX® SM-8X8-15V-LCD (Front and Back)

Features & Applications

The VEEMUX® VGA Video Matrix Switch routes video from many computers to multiple displays (projectors, LCD/plasma monitors, etc.). Signals from a range of input sources can be distributed to various output devices, in essence creating a "matrix" pattern of interconnection possibilities. A single computer video output can be routed to one or more monitors. Each image will be as crisp and clear as if directly connected to the original source. Each video output is buffered from each input, insuring signal integrity throughout the system.

- Configure and control the switch through Ethernet, serial port or front panel buttons.
  - Control switching via optional Infrared remote control.
- Matrix Control Software with Graphical User Interface is included.
- Equipped with Liquid Crystal Display (LCD) for front panel operation.

- Connect any output to any input.
- Broadcast one input to all outputs.
- Inputs and outputs can be named.
- Video bandwidth is 200 MHz or greater, fully loaded.
- Supports 1920x1200 video resolution at a refresh rate of 85 Hz.
- All units pass vigorous testing with 24 hr minimum burn in, heat testing, and load test of all ports.

The VEEMUX switch is the ideal solution for any application where information from many computers is being presented, such as:

- Classrooms
- Boardrooms
- Trade shows
- Conference and entertainment facilities

- Digital Signage
- Courtrooms
- Command centers
- Control rooms

Specifications

Video Input

- Female 15-pin HD connectors.
- Impedance: 75 Ohms.

Video Output

- Female 15-pin HD connectors.
- 1920x1200 video resolution with no degradation.
- Impedance: 75 Ohms.
- Bandwidth: 200 Mhz, fully loaded.

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.
- The smaller models use AC adapters as their power source.

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

Model	Approvals	Model	Approvals	Model	Approvals
4x2	CE, RoHS	8x4	CE, FCC, RoHS	16x12	CE, FCC, RoHS
4x2(DT)	RoHS	8x4(DT)	RoHS	16x16	CE, FCC, RoHS
4x4	CE, RoHS	8x8	CE, FCC, RoHS	32x2	CE, FCC, RoHS
4x4(DT)	RoHS	16x2	CE, FCC, RoHS	32x4	CE, FCC, RoHS
8x2	CE, FCC, RoHS	16x4	CE, FCC, RoHS	32x8	CE, FCC, RoHS
8x2(DT)	RoHS	16x8	CE, FCC, RoHS	32x16	CE, FCC, RoHS

Power Consumption

Model	Watts	Model	Watts
4x2	5	16x8	15
4x4	10	16x12	20
8x2	10	16x16	25
8x4	10	32x2	20
8x8	15	32x4	15
16x2	10	32x8	15
16x4	15	32x16	30

MTBF

Model	Hours	Model	Hours	Model	Hours
4x2	72,513	8x4	65,457	16x12	58,507
4x2(DT)	82,724	8x4(DT)	74,302	16x16	56,322
4x4	78,606	8x8	60,851	32x2	59,296
4x4(DT)	66,979	16x2	69,625	32x4	53,741
8x2	77,743	16x4	66,569	32x8	55,848
8x2(DT)	77,743	16x8	62,284	32x16	50,860

Switch video from many computers among multiple monitors

Configuration and Cable Illustration of VEEMUX Video Matrix Switch
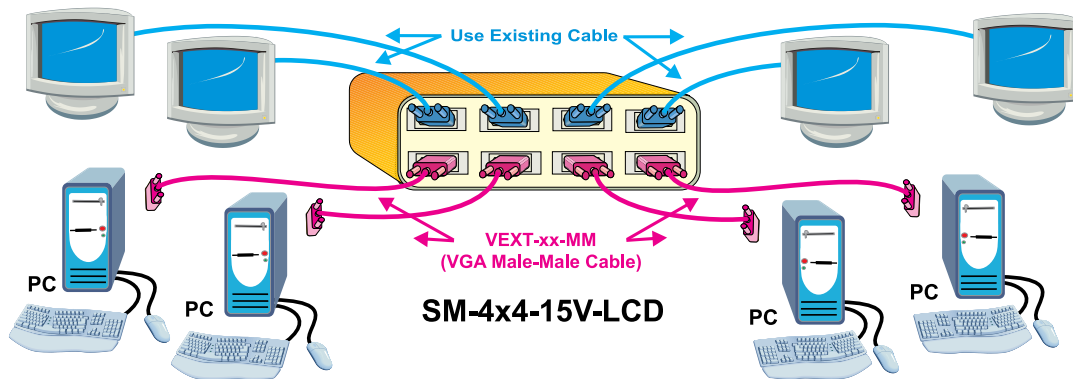
Use Existing Cable

VEXT-xx-MM
(VGA Male-Male Cable)

SM-4x4-15V-LCD

PC   PC   PC   PC

Built-In Control Methods

Front Panel Interface

- Configuration and control can be done using the front panel
- buttons.
- Keypad allows selection of the input source to be routed to
- the desired outputs.
- LED Matrix Display visually shows which inputs are
- connected to which outputs. (Available on the 8x8, 16x8,
- 16x12, 16x16, 32x8 and 32x16 video matrix switches.)

RS232 Control

- Configuration and control can be done through the serial port.
- Baud rate: 1200 through 9600.
- Address up to 15 units with one serial port.
- Changes multiple input-to-output connections quickly and
  efficiently.

Commands

- CC – save connection configuration.
- RC – recall conncetion configuration.
- RV – read switch type and version.
- CS – causes one INx/OUTx connection to occur.
- CA – causes all inputs to connect to specified output.
- RO – reads what input is connected to specified output.
- RU – reads size of matrix, reports number of inputs and
  number of outputs on specified switch.
- EA – set the IP address.
- EM – set the IP mask.
- EG – set the default gateway.
- ET – set the webserver timeout.
- GO* – read input connected to specified output.
- GM* – read input connected to all outputs.
- SS* – enables/disables port change auto status.

*Not GUI compatible.

Ethernet

- Available on all models except desktop units.
- Female RJ45 connector.
- 10/100 BaseT Ethernet interface.
- Supported protocols: HTTP, HTTPS, Telnet.
- Configuration and control can be done over the Internet via
- Web Server or Telnet.

Web Server

- Password (optional SSL encryption) and Administrator
- configurable timeout to ensure security.
- Up to 25 users can be logged into the web page at one time.
- Users and administrators can access the following pages:
  - Switch page – connect any input to any output, save
    and recall up to 10 connection configurations, force
    compensation on all ports. Ports can be listed in order
    by port name or port number.
  - Change password page – administrator and users can
    change their password.
  - Help page – review documentation on the usage of the
    web interface.
  - Update Webserver page – restart the webserver to
    resynchronize all settings with the VEEMUX proper.
  - Logout page – view currently active users and logout
    of the web interface.
- The Administrator can access the following Administrative
  only pages:
  - Web setup page – configure IP address, subnet mask
    and timeout.
  - Serial setup page – configure serial speed and serial
    settings.
  - Ports settings page – assign names to inputs/outputs.
  - Update firmware page – load firmware updates.

Telnet

- Security is ensured by the Administrative 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.

VEEMUX®

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VGA VIDEO MATRIX SWITCH

Switch video from many computers among multiple monitors

Matrix Control Software

- Supports Microsoft Windows® 95/98/NT/ME/2000/XP/Vista.
- Intuitive graphical software provides fast switch control of up to 15 switches using an RS232 connection.
- Control switches with simple drag-n-drop interfaces.
- Supports control over daisy-chained configurations.
- Save and load feature allows frequently used matrix switch configurations to be recalled with the click of a button.
  - Up to nine configurations can be saved/recalled from the switch's internal memory.
- Automatically displays status for all attached switches each time the program is started.
- Inputs and outputs can be named.
- Auto-Update: the view will automatically update when the switch changes configuration.
- Includes HTML help feature.
- View and control multiple switches simultaneously with three unique and powerful views:
  - Matrix View.
  - Table View.
  - Line View.
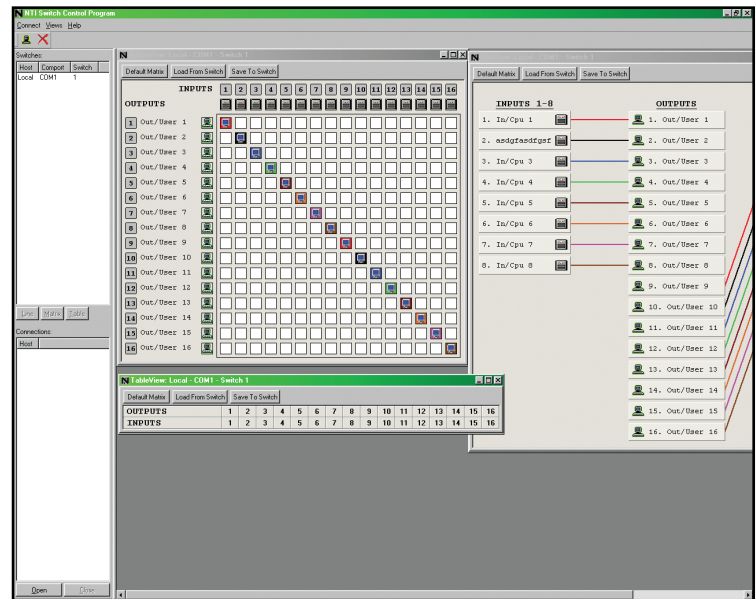
Screen shot of NTI's matrix control management software with a GUI interface

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Desktop Option

VEEMUX SM-8X4-15V-LCD-DT (Front and Back)

- Optional feature. Only available on the 4x2, 4x4, 8x2 and 8x4 video matrix switches.
- Add "DT" to part number to specify this option.

Infrared Control Option

IRT-64X32 - Infrared remote control for video matrix switches controls up to 64 inputs and 32 outputs.

- Transmitter can be up to 50 feet away.
- Control up to 4 switches with one remote.
  - Controls a maximum of 64 inputs and 32 outputs.
- Power: Two AA batteries (included)
- Add "-IR" to part number to specifiy this option.

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Switch video from many computers among multiple monitors

Ordering Specifications

Video Matrix Switch

This example explains the VEEMUX switch part number by breaking it down into the available options. When ordering, choose the options that you require.

| Number of Inputs (Computers) | Number of Outputs (Monitors) | 15-pin VGA | | Optional Desktop Style | Optional Control Method |

SM - n X m - 15V - LCD - DT IR

| "n" = 4, 8, 16, 32 | "m" = 2, 4, 8, 12, 16 | LCD = Liquid Crystal Display Standard | IR = Infrared |

VGA Video Matrix Switch Models

NTI Part #	# of Video Inputs (n)	# of Video Outputs (m)	Desktop Size WxDxH (in)	Rack Units	Rack Size WxDxH (in)
SM-4X2-15V-LCD	4	2	NA	1RU	19x10x1.75
SM-4X2-15V-LCD-DT	4	2	10x7.5x3.3	NA	NA
SM-4X4-15V-LCD	4	4	NA	1RU	19x10x1.75
SM-4X4-15V-LCD-DT	4	4	10x7.5x3.3	NA	NA
SM-8X2-15V-LCD	8	2	NA	1RU	19x10x1.75
SM-8X2-15V-LCD-DT	8	2	10x7.5x3.3	NA	NA
SM-8X4-15V-LCD	8	4	NA	1RU	19x10x1.75
SM-8X4-15V-LCD-DT	8	4	10x7.5x3.3	NA	NA
SM-8X8-15V-LCD	8	8	NA	1RU	19x12x1.75
SM-16X2-15V-LCD	16	2	NA	1RU	19x12x1.75
SM-16X4-15V-LCD	16	4	NA	1RU	19x12x1.75
SM-16X8-15V-LCD	16	8	NA	2RU	19x12x3.5
SM-16X12-15V-LCD	16	12	NA	2RU	19x12x3.5
SM-16X16-15V-LCD	16	16	NA	2RU	19x12x3.5
SM-32X2-15V-LCD	32	2	NA	2RU	19x12x3.5
SM-32X4-15V-LCD	32	4	NA	2RU	19x12x3.5
SM-32X8-15V-LCD	32	8	NA	2RU	19x12x3.5
SM-32X16-15V-LCD	32	16	NA	3RU	19x12x5.25

Cables

- Interface cables between the computers and the switch are required for proper operation.
- Recommended NTI video cables:
  - VGA interface cable (VEXT-xx-MM).
  - VGA to BNC cable (VINT-5B-6).

- Cables not included.

VGA VIDEO/AUDIO MATRIX SWITCH

Switch audio and video from many computers among multiple monitors and speakers

VEEMUX® SM-8X8-AV-LCD (Front and Back)

Features and Applications

The VEEMUX® SM-nXm-AV-LCD audio/video matrix switch routes audio and video input from many computers to multiple displays (projectors, monitors, etc.) and speakers. This switch can drive standard VGA cables, thus eliminating the need for external interfaces and coax cable connections via BNC connectors.

Signals from a range of input sources can be distributed to various output devices. A single computer video output can be routed to one or more monitors. Each video output is buffered from each input, ensuring signal integrity throughout the system. When switching ports, the audio automatically mutes until the video has been synchronized. The audio can be muted on command.

- Configure and control the switch through Ethernet, serial port or front panel buttons.
- Matrix Control Software with Graphical User Interface (GUI control) is included (see page 38).
- Equipped with Liquid Crystal Display (LCD) and RS232 Control.

- Switch VGA video directly.
- Each output provides one video signal and one stereo audio signal.
- Each input can be independently connected to any or all outputs.
- Video bandwidth is 200 MHz or greater.
- Supports 1920x1200 video resolution at a refresh rate of 85 Hz.
- Crestron® compatible.

Specifications

Video Input

- Female 15-pin HD connectors.
- Impedance: 75 Ohms.

Video Output

- Female 15-pin HD connectors.
- 1920x1200 video resolution with no degradation.
- Impedance: 75 Ohms.
- Bandwidth: 200 Mhz, fully loaded.

Audio Input

- 3.5mm stereo audio jacks.
- Impedance: 10k Ohm.
- Maximum Input Level: 1 Vrms or 2.5Vp-p.

Audio Output

- 3.5mm stereo audio jacks.
- 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.
- Gain Adjustment: -20 dB to +10 dB in 2 dB steps.
- 200 mW RMS of continuous power per output.
- When switching ports, audio mutes until video has been synchronized.

Regulatory Approvals

- CE, FCC, RoHS

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.

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector

Power Consumption							
Model	Watts	Model	Watts	Model	Watts	Model	Watts
8x2	10	16x2	15	16x12	25	32x4	20
8x4	15	16x4	15	16x16	30	32x8	25
8x8	20	16x8	20	32x2	20	32x16	35

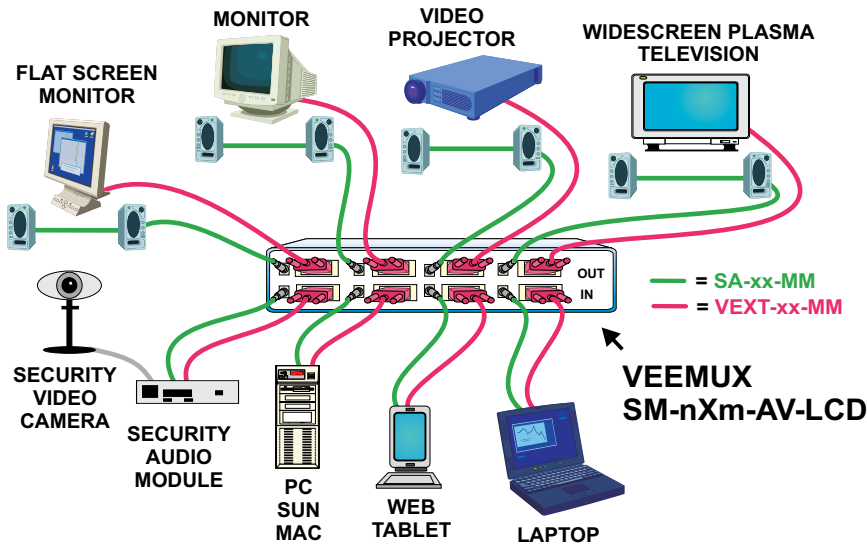| MTBF							
Model	Hours	Model	Hours	Model	Hours	Model	Hours
8x2	61,817	16x2	62,031	16x12	51,063	32x4	45,650
8x4	59,106	16x4	59,128	16x16	48,879	32x8	46,489
8x8	54,568	16x8	54,914	32x2	49,923	32x16	42,025

Control Methods

- Front panel interface. See page 37 for specifications.
- RS232 control. See page 37 for specifications.
- Ethernet control. See page 37 for specifications.
- GUI control. See page 38 for specifications.
- Infrared remote control, See page 38 for specifications.

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Switch audio and video from many computers among multiple monitors and speakers

Configuration and Cable Illustration of VEEMUX Audio/Video Matrix Switch

FLAT SCREEN MONITOR · MONITOR · VIDEO PROJECTOR · WIDESCREEN PLASMA TELEVISION

OUT · IN

— = SA-xx-MM
— = VEXT-xx-MM

VEEMUX SM-nXm-AV-LCD

SECURITY VIDEO CAMERA · SECURITY AUDIO MODULE · PC SUN MAC · WEB TABLET · LAPTOP

Ordering Specifications

Audio/Video Matrix Switch

This example explains the VEEMUX switch part number by breaking it down into the available options. When ordering, choose the options that you require.

Number of Inputs (Computers) · Number of Outputs (Monitors) · Audio/Video · Optional Control Method

$$\text{SM} - n \text{ X } m - \text{AV} - \text{LCD} - \text{IR}$$

"n" = 8, 16, 32 · "m" = 2, 4, 8, 12, 16 · LCD = Liquid Crystal Display Standard · IR = Infrared

NTI Part #	# of Audio/ Video Inputs (n)	# of Audio/ Video Outputs (m)	Rack Units	Rack Size WxDxH (in)
SM-8X2-AV-LCD	8	2	2RU	19x10x3.5
SM-8X4-AV-LCD	8	4	2RU	19x10x3.5
SM-8X8-AV-LCD	8	8	2RU	19x12x3.5
SM-16X2-AV-LCD	16	2	2RU	19x10x3.5
SM-16X4-AV-LCD	16	4	2RU	19x10x3.5
SM-16X8-AV-LCD	16	8	3RU	19x12x5.25
SM-16X12-AV-LCD	16	12	3RU	19x12x5.25
SM-16X16-AV-LCD	16	16	3RU	19x12x5.25
SM-32X2-AV-LCD	32	2	4RU	19x12x7
SM-32X4-AV-LCD	32	4	4RU	19x12x7
SM-32X8-AV-LCD	32	8	4RU	19x12x7
SM-32X16-AV-LCD	32	16	4RU	19x12x7

Audio/Video Matrix Switch Models

Cables

- Interface cables between the computers and the switch are required for proper operation.
- Recommended NTI video cables:
  - VGA interface cable (VEXT-xx-MM).
  - VGA to BNC cable (VINT-5B-6).
- Recommended NTI audio cables.
  - SA-xx-MM
- Cables not included.

VEEMUX®

www.networktechinc.com/avmtx.html

AUDIO/VIDEO MATRIX SWITCH VIA CAT5

Route and distribute audio/video up to 600 feet using CAT5 cable instead of bulky coax cables

VEEMUX® SM-16X16-C5AV-LCD (Front and Back) with a ST-C5VA-L-600 Transmitter and ST-C5VA-R-600 Receiver

Receiver

Transmitter

Features and Applications

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 UTP cable. It is capable of connecting to as many as 32 video sources via transmitters and 16 video displays via receivers with a maximum extension of 600 feet between the local and remote units.

- Configure and control the switch through Ethernet, serial port or front panel buttons.
- Matrix Control Software with Graphical User Interface is included. (see page 38).
- Supports resolutions up to 1920x1440.
- 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 output.

- 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 local and remote units.
- 1RU or 2RU rackmount case is standard.
- 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.

Specifications

VEEMUX SM-nXm-C5AV-LCD
- Female RJ45 input/output connectors.
- Analog bandwidth is 175 MHz.
- 10/100BaseT ethernet interface.
- Supported protocols: HTTP, HTTPS,Telnet.
- RS232 interface.

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

Power
- 110 or 220 VAC at 50 or 60 Hz via IEC connector.

Power Consumption			
NTI Part #	Watts	NTI Part #	Watts
SM-8X8-C5AV-LCD	20	SM-16X16-C5AV-LCD	40
SM-8X16-C5AV-LCD	35	SM-32X8-C5AV-LCD	35
SM-16X8-C5AV-LCD	30	SM-32X16-C5AV-LCD	35

MTBF			
NTI Part #	Hours	NTI Part #	Hours
SM-8X8-C5AV-LCD	58,039	SM-16X16-C5AV-LCD	48,090
SM-8X16-C5AV-LCD	49,162	SM-32X8-C5AV-LCD	44,909
SM-16X8-C5AV-LCD	51,560	SM-32X16-C5AV-LCD	41,842

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Route and distribute audio/video up to 600 feet using CAT5 cable instead of bulky coax cables

Specifications (Continued)

Local Unit (Transmitter)

Video

- VGA transmitter:
  - Male 15-pin HD connector for input connection.
  - Female 15-pin HD connector for local monitor.
  - Compatible with all video resolutions up to WUXGA.
- S-Video transmitter:
  - Male 4-pin miniDIN connector for input connection.
  - Female 4-pin miniDIN connector for local monitor
  - Compatible with S-Video.
- HDTV transmitter:
  - Three RCA plugs for input connection.
  - Three RCA jacks for local monitor.
  - Compatible with YPbPr component video.
- Input impedance: 75 Ohms.
- Maximum input levels: 1.45Vp-p.
- Supports Separate and Composite TTL level sync.
- Input Sync frequency ranges:
  - Horizontal: 15 kHz to 130 kHz.
  - Vertical: 30 Hz to 150 Hz.
- Video is DC coupled.

Audio

- VGA video + audio transmitter: 3.5mm stereo audio plugs for input connection and 3.5mm stereo audio jack for local speakers.
- S-Video + audio receiver: two RCA plugs for input connection and 3.5mm stereo audio jack for local speakers.
- HDTV + stereo audio receiver: two RCA plugs for input connection and two RCA jacks for local speakers.
- Input impedance: 10k Ohms.
- Maximum input levels: 3.1Vp-p (line level).
- CD quality audio output.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 10W

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

MTBF			
NTI Part #	Hours	NTI Part #	Hours
ST-C5V-L-600	83,519	ST-C5SV-L-600	95,866
ST-C5VA-L-600	81,354	ST-C5SVA-L-600	92,987
ST-C5HDTV-L-600	77,426		

Remote Unit (Receiver)

Video

- VGA receiver:
  - Female 15-pin HD connector.
  - Supports resolutions up to 1920x1440; refer to the resolution chart on page 45 for resolutions at different lengths.
- S-Video receiver:
  - Female 4-pin miniDIN connector.
  - Supports maximum 800x600 S-Video resolution.
- HDTV receiver:
  - Three RCA jacks.
  - Resolutions: HDTV 480i, 480p, 720i, 720p, 1080i, 1080p.
- Video quality adjustment for different lengths of CAT5/5e/6 cable is done manually for video-only units and automatically for audio/video units.
  - When using CAT6, some degradation may be experienced, depending on the length of the cable.
- Output impedance: 75 Ohms.
- Maximum output level: 1.45Vp-p.

Audio

- VGA video + audio receiver: 3.5mm stereo audio jack.
- S-Video + audio receiver: 3.5mm stereo audio jack.
- HDTV + stereo audio receiver: two RCA jacks.
- Frequency response: 20 Hz to 20 kHz, ±1.5dB.
- Signal-to-Noise Ratio (SNR): >72 dBA.
- Total Harmonic Distortion and Noise (THD+N): <0.06%.
- Stereo crosstalk: -70 dB.
- Maximum output levels: 3.1Vp-p (line level).
- Line level output; supports multimedia speakers.
  - CD quality audio output.
- Requires powered speakers.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter
- Power consumption: 10W

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

MTBF			
NTI Part #	Hours	NTI Part #	Hours
ST-C5V-R-600	89,155	ST-C5SV-R-600	84,040
ST-C5VA-R-600	87,915	ST-C5SVA-R-600	86,077
ST-C5HDTV-R-600	83,389		

VEEMUX®

Route and distribute audio/video up to 600 feet using CAT5 cable instead of bulky coax cables

Configuration and Cable Illustration
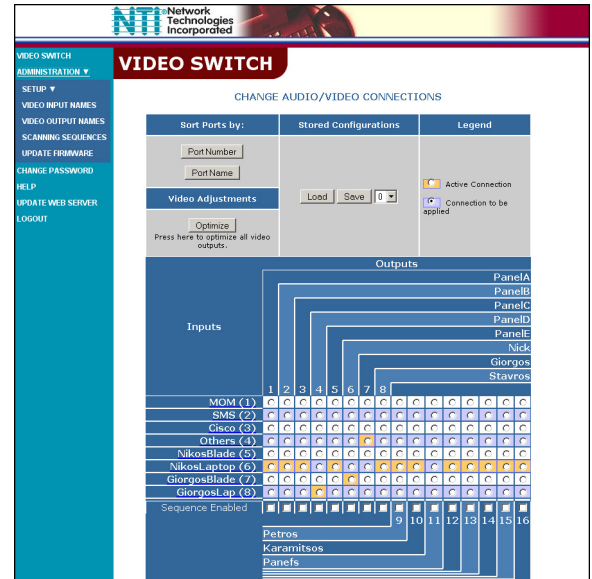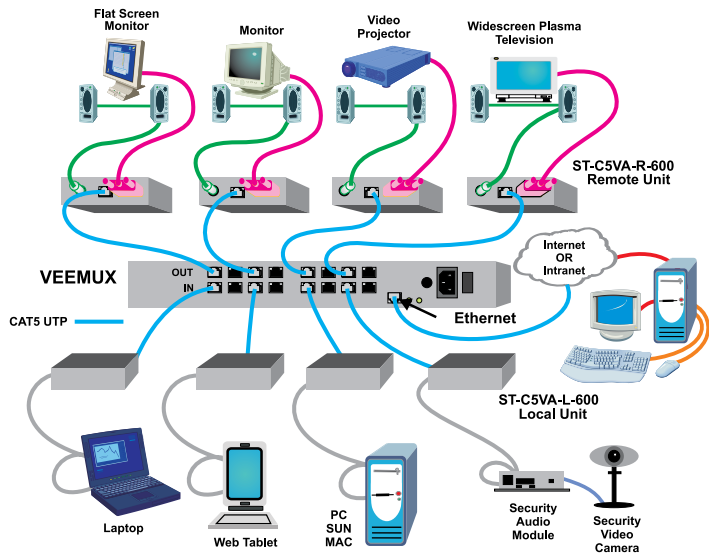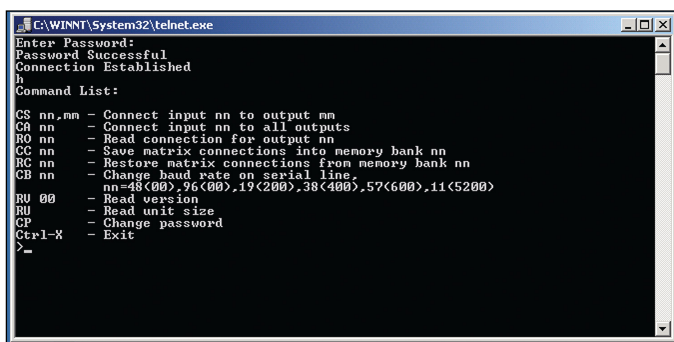
Screenshot of the web server interface

Built-In Control Methods

Front Panel Interface

- Liquid Crystal Display (LCD) can display all current connections.
- Locally change input and output selections with front panel buttons.
- Digital VU-Meter displays the audio levels for the currently selected port.
- Configuration and control can be done using the front panel buttons.
- Main menu allows the user to:
  - Set serial address.
  - Set serial speed.
  - Set IP address.
  - Set Subnet Mask.
  - Adjust contrast.
  - Force compensation.
  - Show size.

Ethernet Control

- Configuration and control can be done over the Internet via web page or telnet.

Screenshot of the telnet 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**: 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 (see page 45).
- 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.

www.networktechinc.com/avmtx-cat5.html

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Route and distribute audio/video up to 600 feet using CAT5 cable instead of bulky coax cables

Built-In Control Methods (Continued)

RS232 Control

- Configuration and control can be done through the serial port.
- Control the switch using Matrix Control Software with Graphical User Interface (GUI control) via RS232. See page 38 for specifications
- Selectable baud rate: 1200 through 9600.
  - Baud rate is set via the main menu, serial command, telnet or web page.

Resolutions Using VGA Transmitters and Receivers		
Cable	Distance (feet)	Resolution
CAT5/CAT5e (UTP)	600	1024x768 at 60Hz
	400	1280x1024 at 60Hz
	300	1600x1200 at 60Hz
	100	1920x1440 at 60Hz
CAT5/CAT5e (STP), CAT6 (UTP)	300	1024X768 at 60Hz
	200	1280x1024 at 60Hz
	100	1920x1440 at 60Hz

CAT5 A/V Matrix Switch Models				
NTI Part #	# of Inputs	# of Outputs	Rack Units	Size WxDxH (in)
SM-8X8-C5AV-LCD	8	8	1RU	19x12x1.75
SM-8X16-C5AV-LCD	8	16	1RU	19x12x1.75
SM-16X8-C5AV-LCD	16	8	1RU	19x12x1.75
SM-16X16-C5AV-LCD	16	16	1RU	19x12x1.75
SM-32X8-C5AV-LCD	32	8	2RU	19x12x3.5
SM-32X16-C5AV-LCD	32	16	2RU	19x12x3.5

Commands

- **CS**–causes INx/OUTx connection to occur.
- **CA**–causes all inputs to connect to specified output.
- **RO**–reads what input is connected to specified output.
- **CC**–save matrix.
- **RC**–recall matrix.
- **CB**–change baud rate.
- **RV**–version information.
- **RU**–reads size of matrix, reports number of inputs and number of outputs on specified switch.
- **EA**–set the IP address.
- **EM**–set the IP mask.
- **EG**–set the default gateway.
- **ET**–set the webserver timeout.

Cables

- Use CAT5, CAT5e or CAT6 UTP straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors. Cables not included.

Transmitter and Receiver Models		
Supported Features	Transmitters NTI Part #	Receivers NTI Part #
VGA	ST-C5V-L-600	ST-C5V-R-600
VGA + audio	ST-C5VA-L-600	ST-C5VA-R-600
S-Video	ST-C5SV-L-600	ST-C5SV-R-600
S-Video + audio	ST-C5SVA-L-600	ST-C5SVA-R-600
HDTV+stereo audio	ST-C5HDTV-L-600	ST-C5HDTV-R-600

A/V MATRIX SWITCH WITH DIRECT VGA IN & CAT5 OUT

Switch audio and video from many computers among multiple monitors and speakers

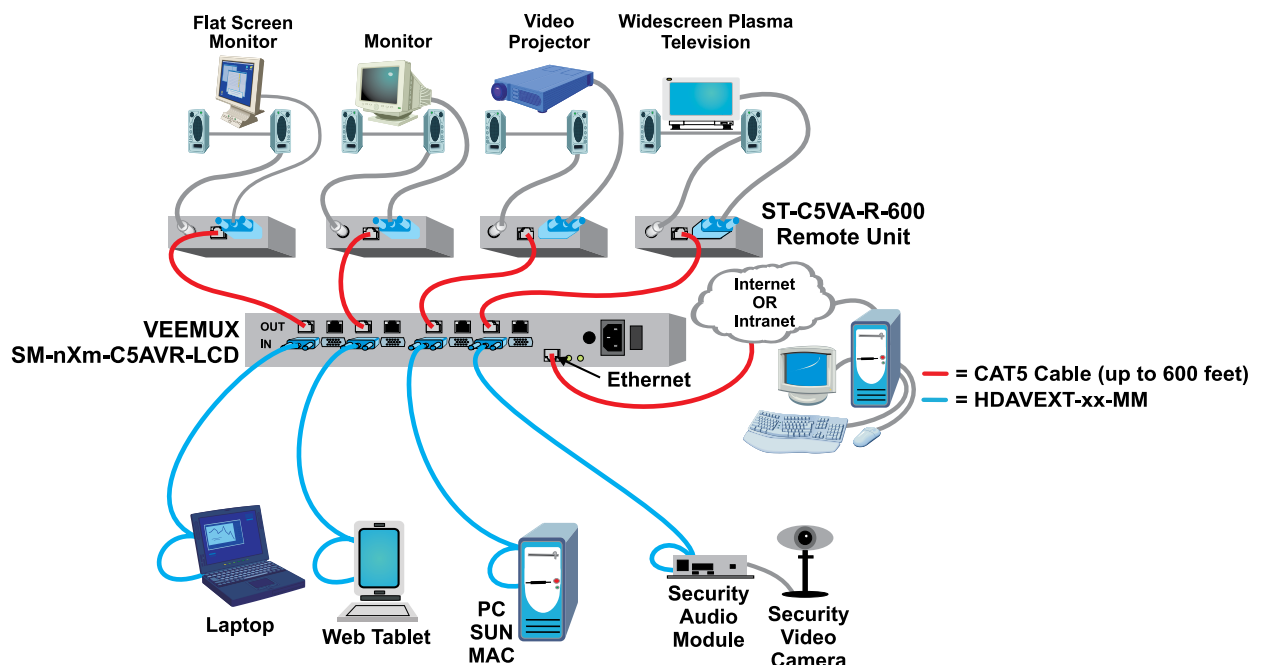**VEEMUX® SM-16X16-C5AVR-LCD (Front & Back)**

Features and Applications

The VEEMUX® Audio/Video Matrix Switch with Direct-Connect VGA Inputs and CAT5 RJ45 Outputs routes audio/video signals from many computers to multiple displays (projectors, LCD/plasma monitors, etc.) and speakers. It is capable of connecting to as many as 16 video sources directly and 16 video displays via receivers with a maximum extension of 600 feet from the switch using CAT5/5e/6 cable.

A single audio/video output can be routed to one or more destinations. Each image will be as crisp and clear as if directly connect to the original source. Buffered video outputs and digital transmission of audio signals ensures integrity is maintained throughout the system.

- Configure and control the switch through Ethernet, serial port or front panel buttons.
- Matrix Control Software with Graphical User Interface (GUI control) is included with the product (see page 38).
- Supports video resolutions to 1920x1440.
- Each input can be independently connected to any or all outputs.
- Inputs and outputs can be named.

- Each output provides one video signal and one stereo audio signal.
- Video quality adjustment is done automatically at every connection change, or can be forced via the front panel or web interface.
- No loss of audio or video quality between the switch and remote units.
- Cabling runs are simplified with NTI's high density A/V switch cables.

Configuration and Cable Illustration

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International calls

A/V MATRIX SWITCH WITH DIRECT VGA IN & CAT5 OUT

Switch audio and video from many computers among multiple monitors and speakers

Specifications

VEEMUX SM-nXm-C5AVR-LCD

- Female 15-pin HD input connectors.
- Female RJ45 output connectors.
- Bandwidth: 175 MHz, fully loaded.
- 10/100BaseT Ethernet interface.
- Supported protocols: HTTP, HTTPS, Telnet
- RS232 interface.

Dimensions

- WxDxH (in): 19x12x3.5

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.

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

Control Methods

- Front panel interface. See page 44 for specifications.
- RS232 control. See page 45 for specifications.
- Ethernet control. See page 44 for specifications.
- GUI control. See page 38 for specifications

Distances and Resolutions for CAT5/CAT5e and CAT6 Cables		
Cable	**Distance (feet)**	**Resolution**
CAT5/CAT5e Solid UTP	600	1024x768 at 60Hz
	400	1280x1024 at 60Hz
	300	1600x1200 at 60Hz
	100	1920x1440 at 60Hz
CAT5/CAT5e Solid STP, CAT6 Solid UTP	300	1024x768 at 60Hz
	200	1280x1024 at 60Hz
	100	1920x1440 at 60Hz

Cables

- Interface cables between your computers and the switch are required for proper operation.
  - Use VEXT-xx-MM to connect VGA video from the computers to the switch.
  - Use HDAVEXT-xx-MM to connect VGA video and stereo audio from the computers to the switch.
- Use CAT5, CAT5e or CAT6 solid straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors.
- Cables not included.

Remote Unit (Receiver)

Video Output

- Female 15-pin HD connector.
- Supports resolutions up to 1920x1440; refer to the resolution chart on below for resolutions at different lengths.
- Output impedance: 75 Ohms.
- Maximum output level for video: 1.45Vp-p.
- Video quality adjustment for different lengths of CAT5/5e/6 cable is done manually for video-only units and automatically for audio/video units.

Optional Audio

- 3.5mm stereo audio jack.
- Frequency response: 20 Hz to 20 kHz, ±1.5dB.
- Signal-to-Noise Ratio (SNR): >72 dBA.
- Total Harmonic Distortion and Noise (THD+N): <0.06%.
- Stereo crosstalk: -70 dB.
- Maximum output levels: 3.1Vp-p (line level).
- Line level output; supports multimedia speakers.
  - CD quality audio output.

Dimensions

- WxDxH (in): 3.5x3.1x1.2

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.

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

Audio/Video Matrix Switch Models		
NTI Part #	**# of VGA Inputs**	**# of RJ45 Outputs**
SM-8X8-C5AVR-LCD	8	8
SM-8X16-C5AVR-LCD	8	16
SM-16X8-C5AVR-LCD	16	8
SM-16X16-C5AVR-LCD	16	16

Receiver Models	
Supported Features	**NTI Part #**
VGA	ST-C5V-R-600
VGA + Audio	ST-C5VA-R-600

COMPONENT VIDEO/AUDIO MATRIX SWITCH

Switch component video and audio from eight sources to four displays and speakers

DIGITAL SIGNAGE

VEEMUX® SM-8X4-HDA (Front & Back)

Features & Applications

The VEEMUX® Component Video/Audio Matrix Switch independently switches eight sets of YPbPr component video and analog/digital audio signals to any or all of the four outputs. Each input and output has YPbPr component video, L/R analog audio (balanced/unbalanced), and digital audio on coax (S/PDIF).

- Supports High Definition and Standard Definition YPbPr component video, S-Video or composite video.
- Audio can be unbalanced analog stereo, balanced analog stereo or digital S/PDIF.
  - Supports S/PDIF, DTS Digital Surround™, and Dolby Digital™ 5.1 digital signals.
- Supports HDTV resolutions to 1080p.
- Features break-away audio – allows audio to be switched independent of video.
- Equipped with volume control: -80dB to 10dB, in 1dB steps.
- Control the switch through Ethernet, RS232, or front panel buttons.
- The SM-8X4-HDA is the ideal solution for many applications, such as digital signage, mission critical command centers, sports facilities and entertainment venues.

Control Methods

Front Panel Interface

- Configuration and control can be done using the front panel buttons.
- Liquid Crystal Display (LCD) displays all current connections.
- Locally change input and output selections with front panel buttons.

Ethernet Control

- Configuration and control can be done over the Internet via Web Server and Telnet.
- RJ45 connector with LEDs.
- 10/100Base-T Ethernet interface.
- Supported protocols: HTTP, HTTPS, Telnet.

RS232 Control

- Female DB9 connector.
- Configuration and control can be done through the serial port.
- Control the switch using Matrix Control Software with Graphic User Interface via RS232. (See page 38 for specifications)
- Baud rate selectable from 1200, 2400, 4800, 9600.

Specifications

Video

- BNC connectors.
- Signal type: HDTV YPbPr component, S-Video, composite.
  - Inputs and outputs must be of the same format.
- Maximum input/output levels: 2Vp-p.
- Input/output impedance: 75 Ohms.
- Video crosstalk: <-60dB.
- Video gain: unity.
- Bandwidth: >150MHz, fully loaded.
- Resolutions: HDTV 480i, 480p, 720i, 720p, 1080i, and 1080p.

Digital Audio

- BNC connectors.
- Signal type: S/PDIF, DTS Digital Surround™, Dolby Digital™ 5.1.
  - Inputs and outputs must be of the same format.
- Maximum input/output levels: 1Vp-p (unbalanced).
- Input/output impedance: 75 Ohms.

Stereo Audio

- Screw terminal connectors.
- Signal type: balanced stereo audio, unbalanced stereo audio, analog, left/right.
  - Inputs and outputs must be of the same format.
- Maximum input/output levels: 2.5Vp-p.
- Input impedance: 10K Ohms.
- Line level output, maximum load: 2K Ohms
- Frequency Response: ±0.05 dB, 20 Hz to 20 kHz.
- Total Harmonic Distortion + Noise (THD+N): 0.03% at 1kHz.
- Signal-to-Noise Ratio (SNR): >80 dBA.
- Stereo Channel Separation: <-90 dBA.
- Output gain: -80dB to 10dB.

Power

- 110 or 220 at 50 or 60 Hz via IEC connector.

Dimensions

- WxDxH (in): 19x10x3.5

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

MTBF

- 56,920 hrs.

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DVI VIDEO MATRIX SWITCH

Switch single link DVI-D video: 4x4 and 8x8 models

Features & Applications

The VEEMUX® DVI Video Matrix Switch routes video from up to eight single link digital DVI video sources (computers, DVD players, satellite receivers, etc.) to up to eight displays (LCD monitors, Plasma screens, DLP HDTVs, projectors, etc.).

- Configure and control the switch through serial port or front panel buttons.
- Supports DVI-D interface for crisp and clear video quality on flat panel displays.
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.
- EDID learning for the support of any DVI display device.
- Built-in default EDID configuration table for both PC and MAC.
- Connect any output to any input.
- Broadcast one input to all outputs.

Control Methods

Front Panel Interface

- Configuration and control can be done using the front panel buttons.
- Locally change input and output selections with front panel buttons.

RS232 Control

- Configuration and control can be done through the serial port.
- Female 9-pin D connector.
- Baud rate: 9600

Matrix Control Software

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

Cables

- Interface cables between the video sources and the switch are required for proper operation.
- Recommended NTI video cables: DVI interface cable (DVI-IS-xx-MM).
- Cables not included.

DVI Video Matrix Switch Models

NTI Part #	# of Inputs	# of Outputs	Size WxDxH (in)
SM-4X4-DVI	4	4	12x6.5x1.75
SM-8X8-DVI	8	8	17x7x1.75

VEEMUX® SM-4X4-DVI (Front & Back)

Specifications

Video Input

- Compatible with computers and HDTV video sources (satellite receivers, DVD players, etc) with DVI-D outputs.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- Female DVI-I connectors.
- Signal type: Single link digital DVI

Video Output

- Female DVI-I single link connectors.
- Signal type: Single link digital DVI
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.
- Video bandwidth: 1.65 Gbps

Power

- 100 to 240 VAC at 50 or 60 Hz via AC Adapter.
- Power consumption:
  - 4x4: 10W max
  - 8x8: 13W max

Note: The SM-nXm-DVI DVI Video Matrix Switch does not support HDCP.

Configuration and Cable Illustration
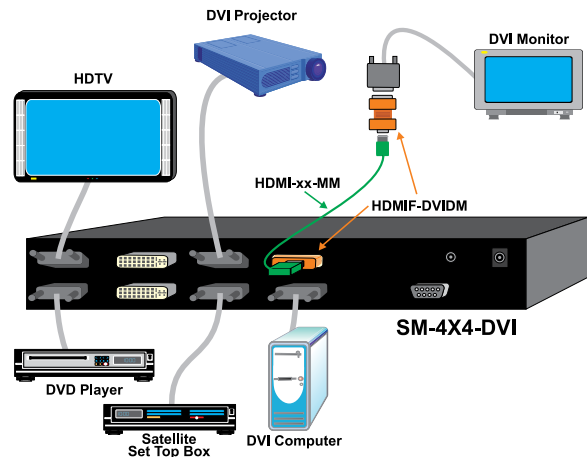
330.562.1999
Worldwide fax

email
sales@ntigo.com

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HIGH DENSITY VGA USB KVM SWITCH

Control up to 32 USB computers with one USB keyboard, USB mouse & VGA monitor

Available Options:

- **USB connector for USB touch screen monitor, SMART Board™ Interactive Whiteboard, or CAC reader**

- **Extender port for connecting a remote user 300 feet away via CAT5**

UNIMUX-USBV-16HDU (Front and Back)

Features & Applications

The UNIMUX™ High Density VGA USB KVM Switch allows a user to control up to 32 USB computers with one USB keyboard, USB mouse and VGA monitor. Dedicated internal microprocessors emulate keyboard and mouse presence to each attached CPU 100% of the time so all computers boot error-free.

- The High Density Switch saves rack space.
  - 4-, 8- and 16-port switches are 1RU in height.
  - 32-port switch is 2RU in height.
  - Rackmount kit included.
- Features NTI's patented true autoboot USB switching – all attached computers can be booted simultaneously.
- Compatible with USB computers (PC, SUN and MAC).
- Crisp and clear 1920x1200 video resolution.
- Equipped with OSD, RS232, and Ethernet.
- High quality steel construction.
- Cascade UNIMUX switches off a single master switch to control up to 1,024 computers as if from one switch.
- Flash upgradeable.

- Cabling runs are simplified with NTI's high density KVM switch cables.
- Optional support for a USB 2.0 (low/full speed) device, in addition to keyboard and mouse, such as a USB touch screen monitor, SMART Board™ Interactive Whiteboards, or CAC card reader.
- Optional extender port for locating a remote user up to 300 feet via CAT5/5e/6 cable.
  - Only one user can be active at a time.
  - Locked out user must wait five seconds after last keystroke or mouse movement from active user.
  - For switches with the additional USB port option, the remote user does not have access to the extra USB device.

Specifications

Hosts

- Female 15-pin HD connectors.
- Supports USB computers with VGA video.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- Any legacy PS/2 or SUN computer can be connected by using a USB-PS2-R or USB-SUN-R.

Monitor

- Crisp and clear 1920x1200 resolution.
- One female 15-pin HD connector.
- A multiscan VGA monitor is required to display the different video outputs from different platforms.
- Bandwidth is 150 MHz.

Devices

- Two female USB Type A connectors.
- Compatible with most USB keyboards and mice, including Microsoft USB Intellimouse®
- Keyboard and mouse are hot-pluggable.
- Available with an optional female USB Type A connector for an additional USB 2.0 (low/full speed) device.
  - Use to connect a USB touch screen monitor, CAC card reader, or SMART Board™ Interactive Whiteboard.
  - USB maximum data rate: 12 Mbps

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.

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)
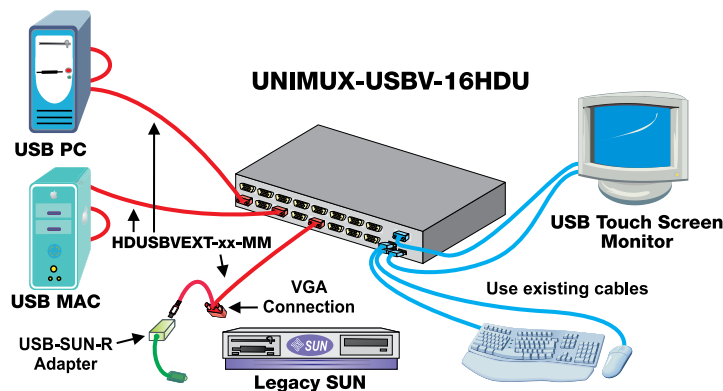- Operating and Storage Relative Humidity: 17 to 90% non-condensing RH.

Regulatory Approvals

- CE, RoHS

MTBF			
NTI Part #	**Hours**	**NTI Part #**	**Hours**
UNIMUX-USBV-4HD	211,477	UNIMUX-USBV-16HD	133,913
UNIMUX-USBV-8HD	196,238	UNIMUX-USBV-32HD	87,413

Configuration and Cable Illustration

UNIMUX-USBV-16HDU

USB PC

HDUSBVEXT-xx-MM

USB MAC

USB-SUN-R Adapter

VGA Connection

Legacy SUN

USB Touch Screen Monitor

Use existing cables

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HIGH DENSITY VGA USB KVM SWITCH

Control up to 32 USB computers with one USB keyboard, USB mouse & VGA monitor

Control Methods

Front Panel Interface

- Touch a button and be connected to a computer or change modes of operation.
- LEDs indicate currently selected port and mode of operation.

RS232 Control

- Female RJ45 connector.
- Baud rate 1200 to 115200.
- Address up to 15 units, all of which can be daisy-chained and controlled by one serial port.

Commands

- CS – connects output with specific input.
- RO – reads what input is connected to output.
- RU – reads size of switch.

Ethernet Control

- Female RJ45 connector.
- 10/100 BaseT Ethernet interface.
- Supported protocol: Telnet.
- Control can be done over Telnet.

Telnet

- Commands are similar to RS232 commands.
- The telnet server listens on port 2005 (configurable).
  - Port 2005 is intended for a software control type session.

Keyboard

- **Scan, Broadcast** or **Command Modes** are available from the keyboard.
- Use the keyboard to command the switch box to select ports or configure the **SCAN** delay.

On Screen Display (OSD)

- Select computers by name with the On Screen Display (OSD).
- Use keyboard or mouse to operate the switch from menus superimposed onto the monitor.
- Shows names of computers on cascaded switches up to 1024 ports.
- Names can be up to 12 characters long.
- Power status of each computer is displayed.
- View usage statistics – power-on cycles and hours of usage.
- Help screens assist users with the OSD.
- Modify the size and position of the OSD.
- OSD is built into the switch – no need to install additional hardware or software.
- OS and software-independent.

Security

- Advanced security included.
- Each user password can be up to 15 characters long, and each switch can store up to 63 users.
- Administrator can enable or disable all security features and select which computers each user can access.
- Once security is enabled, a user or administrator must login in order to access any of the computers connected to the switch.

Ordering Specifications

This example explains the NTI part by breaking it down into the available options. When ordering, choose the options that you require.

	Universal Serial Bus Version	Number of Ports	High Density	Optional USB Port	Optional Extender Port
UNIMUX -	**USBV -**	**x**	**HD**	**U**	**C5**

High Density VGA USB KVM Switch Models

NTI Part #	# of CPUs (x)	Desktop Size WxDxH (in)	Rack Units	Rack Size WxDxH (in)
UNIMUX-USBV-4HD	4	16.7x6.8x1.75 (without supplied rackmount kit)	1RU	19x6.8x1.75 (with supplied rackmount kit)
UNIMUX-USBV-8HD	8	16.7x6.8x1.75 (without supplied rackmount kit)	1RU	19x6.8x1.75 (with supplied rackmount kit)
UNIMUX-USBV-16HD	16	16.7x6.8x1.75 (without supplied rackmount kit)	1RU	19x6.8x1.75 (with supplied rackmount kit)
UNIMUX-USBV-32HD	32	N/A	2RU	19x10x3.5

USB KVM Receiver (Remote Unit)
For use with switch with extender port option

NTI Part #	Maximum Extension (ft.)	Dimensions WxDxH (in.)
ST-C5USBV-R-300	300	3.5x3.1x1.3

Cables

- Interface cables between your computers and the switch are required for proper operation. Use HDUSBVEXT-xx-MM to connect computers to switch.
- Cables not included.

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HIGH DENSITY VGA USB KVM MATRIX SWITCH

Up to four users can control 32 USB computers

Available Options:

- **USB connector for USB touch screen monitor, CAC reader, or SMART Board™ Interactive Whiteboard**

- **Extender ports for connecting up to two remote users 300 feet away via CAT5**

UNIMUX-4X8-UHDUC5 (Front and Back)

Features & Applications

The UNIMUX™ High Density VGA USB KVM Matrix Switch allows up to four users to individually command or simultaneously share up to 32 USB computers. Access USB computers (PC, SUN, and MAC) using USB keyboards and mice, and VGA multiscan monitors.

- The High Density Switch saves rack space.
  - The 2x8, 2x16 and 4x8 switches are 1RU in height.
  - The 2x32, 4x16 and 4x32 switches are 2RU in height.
- Features NTI's patented true autoboot USB switching – all attached computers can be booted simultaneously.
- Compatible with USB computers (PC, SUN, MAC).
- Cascade UNIMUX switches off a single master switch to control up to 256 computers as if from one switch.
- Flash upgradeable.
- High quality steel construction.
- Crisp and clear 1920x1200 video resolution.
- Equipped with OSD, Liquid Crystal Display, RS232, and Ethernet.
- Dedicated microprocessors prevent computers from locking up, ensuring reliable control.

- Cabling runs are simplified with NTI's high density KVM switch cables.
- Flash upgradeable
- Optional support for USB 2.0 (low/full speed) devices, in addition to keyboards and mice, such as a USB touch screen monitors, SMART Board™ Interactive Whiteboards, or CAC card readers.
  - Additional USB device must be the same for each user.
- Optional extender ports for locating remote users up to 300 feet via CAT5/5e/6 cable.
  - 2-port models feature one local user and one remote user ports.
  - 4-port models feature two local user and two remote user ports.
  - For switches with the additional USB port option, the remote user does not have access to the extra USB device.

Specifications

Hosts

- Female 15-pin HD connectors.
- Supports USB computers with VGA video.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- Any legacy PS/2 or SUN computer can be connected by using a USB-PS2-R or USB-SUN-R adapter.

Monitor

- Crisp and clear 1920x1200 resolution.
- Female 15-pin HD connectors.
- A multiscan VGA monitor is required to display the different video outputs from different platforms.
- Bandwidth is 150 MHz.

Devices

- Female USB Type A connectors.
- Keyboard and mouse are hot-pluggable.
- Available with optional female USB Type A connectors for additional USB 2.0 (low/full speed) devices.
  - Use to connect USB touch screen monitors, CAC card reader, SMART Board™ Interactive Whiteboards.
  - USB maximum data rate: 12 Mbps

Regulatory Approvals

- CE, RoHS

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.

Power Consumption			
Model	Watts	Model	Watts
2x8	15	4x8	20
2x16	15	4x16	20
2x32	15	4x32	20

Configuration and Cable Illustration

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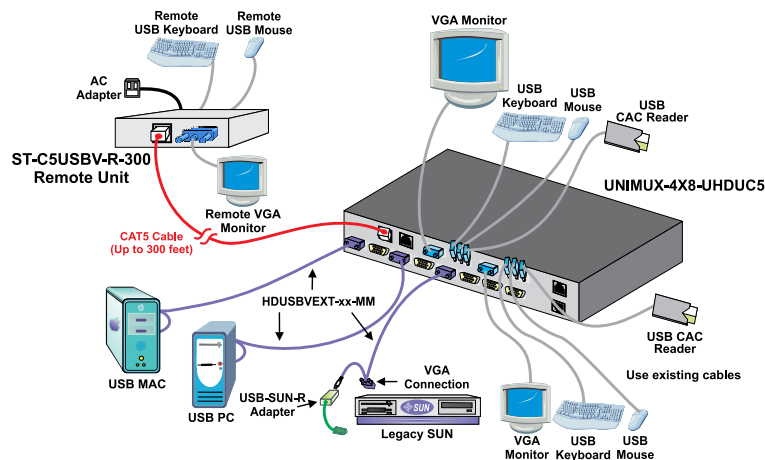
HIGH DENSITY VGA USB KVM MATRIX SWITCH

Up to four users can control 32 USB computers

Control Methods

Keyboard

- Scan, Broadcast, Sharing or Command modes are available from the keyboard using hot keys.

RS232 Control

- Female RJ45 connector.
- Baud rate 1200 to 115200.
- Address up to 15 units, all of which can be daisy-chained and controlled by one serial port.

Commands

- CS – causes one INx/OUTx connection to occur.
- CA – causes all inputs to connect to specified output.
- RO – reads what input is connected to specified output.
- RU – reads size of matrix, reports number of inputs and number of outputs on specified switch.

Ethernet Control

- Female RJ45 connector.
- 10/100 BaseT Ethernet interface.
- Supported protocol: Telnet.
- Control can be done over Telnet.

Telnet

- Commands are similar to RS232 commands.
- The telnet server listens on port 2005 (configurable).
  - Port 2005 is intended for a software control type session.

Front Panel Interface

- Locally change ports and navigate through LCD screen to execute actions.
- LCD indicates currently selected port for each user.

On Screen Display (OSD)

- Select computers by name with the On Screen Display (OSD)
- Use keyboard or mouse to operate the switch from menus superimposed onto the monitor.
- Power status of each computer is displayed.
- View usage statistics – power-on cycles and hours of usage.
- Names can be up to 12 characters long.
- Shows names of computers on cascaded switches up to 256 ports.
- Modify the size and position of the OSD.
- Help screens assist users with the OSD.
- OS- and software-independent.
- OSD is built into the switch – no need to install additional hardware or software.

Security

- Advanced security included.
- Each user password can be up to 15 characters long, and each switch can store up to 63 users.
- Administrator can enable or disable all security features and select which computers each user can access.
- Once security is enabled, a user or administrator must login in order to access any of the computers connected to the switch.

Ordering Specifications

This example explains the NTI part number by breaking it down into the available options. When ordering, choose the options that you require

| | Number of Users | Number of CPUs | Universal KVM Switch | High Density | Optional USB Port | Optional Extender Port |

UNIMUX - n X m - U HD U C5

High Density VGA USB KVM Matrix Switch Models

NTI Part #	# of Users (n)	# of CPUs (m)	Rack Units	Rack Size WxDxH (in)	# of local user ports with extender port option	# of remote user ports with extender port option
UNIMUX-2X8-UHD	2	8	1RU	19x10x1.75	1	1
UNIMUX-2X16-UHD	2	16	1RU	19x10x1.75	1	1
UNIMUX-2X32-UHD	2	32	2RU	19x10x3.5	1	1
UNIMUX-4X8-UHD	4	8	1RU	19x10x1.75	2	2
UNIMUX-4X16-UHD	4	16	2RU	19x10x3.5	2	2
UNIMUX-4X32-UHD	4	32	2RU	19x10x3.5	2	2

USB KVM Receiver (Remote Unit)
For use with switch with extender port option

NTI Part #	Maximum Extension (ft.)	Dimensions WxDxH (in.)
ST-C5USBV-R-300	300	3.5x3.1x1.3

Cables

- Interface cables between your computers and the switch are required for proper operation. Use HDUSBVEXT-xx-MM to connect computers to the switch.
- Cables not included.

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HIGH DENSITY DVI USB KVM SWITCH

Control up to 16 DVI USB computers with one USB keyboard, USB mouse & DVI monitor

Features & Applications

The UNIMUX™ High Density DVI USB KVM switch allows you to control up to 16 single link DVI USB computers with one DVI-D monitor, USB keyboard and USB mouse.

- Incorporates NTI's patented true autoboot USB switching; all attached USB PCs, SUNs and MACs can be booted simultaneously.
- Supports video resolutions up to 1920x1200.
- Supports digital DVI for crisp and clear video quality on flat panel display.
- Control the switch through the front panel interface, keyboard commands or RS232.
- Compliant with USB 2.0 (low/full speed) standards.
- High quality, rugged steel construction with durable powder coat finish.
- USB SUN start-up keys are supported.
- Supports MAC soft (keyboard) power-on.
- 1RU case is standard. Includes rackmount kit.
- Cabling runs are simplified with NTI's high density KVM switch cables.

Control Methods

Front Panel Interface

- LEDs indicate currently selected port and mode of operation.
- Hold in any button for more than five seconds to go into Scan, Broadcast or Command Mode.

Keyboard

- Scan, Broadcast or Command Modes are available from the keyboard using hot keys.

RS232 Control

- Female RJ45 connector.
- Baud rate 2400, 9600, 19200, or 38400.
- Use DIP switches to set the baud rate and address up to 16 units, all of which can be daisy-chained and controlled by one serial port.
- 5-foot CAT5e patch cable, RJ45F-DB9F and RJ45F-DB25F adapters included.

Configuration and Cable Illustration

USB DVI PC
USB DVI MAC
USB DVI SUN
UNIMUX-DVI-16HD
Use existing cables
= USB-DHEXT-xx-MM
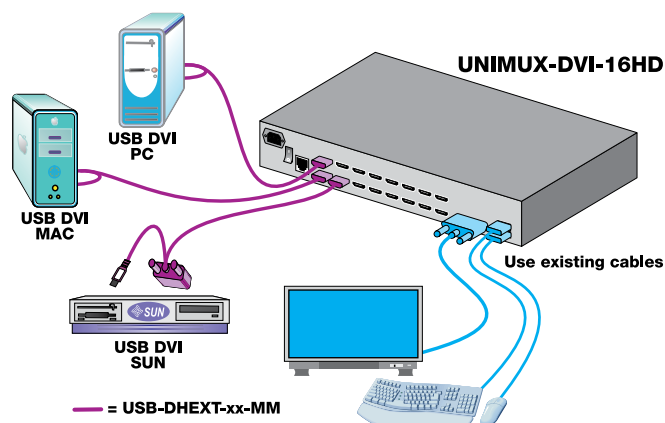
UNIMUX-DVI-16HD (Front and Back)

Specifications

Hosts

- Female HDMI-A connectors.
- Supports USB computers (PC, SUN, MAC) with DVI video.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD and MAC OS 9/10.

Monitor

- Supports crisp and clear video resolutions up to 1920x1200.
- One female DVI-I connector.
- Single link digital DVI signal.
- DDC2B compatible.

Devices

- Two female USB Type A connectors.
- Provides support for full-speed (12 Mbps) or low-speed (1.5 Mbps) USB keyboard and mouse.
- Compatible with most USB keyboards and mice, including USB IntelliMouse®.
- Keyboard and mouse are hot-pluggable.
- Supports SUN and MAC extra keys.

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.
- Power consumption: 10W

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

MTBF	
NTI Part #	**Hours**
UNIMUX-DVI-4HD	65,864
UNIMUX-DVI-8HD	64,114
UNIMUX-DVI-16HD	56,335

Cables

- Interface cables between your computers and the switch are required for proper operation. (Cables not included) Use USB-DHEXT-xx-MM to connect the computers to the switch.

High Density DVI USB KVM Switches			
NTI Part #	# of CPUs (x)	Desktop Size WxDxH (in) without supplied rackmount kit	Rack Size WxDxH (in) with supplied rackmount kit
UNIMUX-DVI-4HD	4	15.2x6x1.75	19x6x1.75
UNIMUX-DVI-8HD	8	15.2x6x1.75	19x6x1.75
UNIMUX-DVI-16HD	16	15.2x6x1.75	19x6x1.75

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HIGH DENSITY DVI USB KVM MATRIX SWITCH WITH AUDIO

Up to four users can control four USB computers

Features & Applications

The UNIMUX™ High Density DVI USB KVM Matrix Switch allows up to four users to individually command or simultaneously share up to four USB computers. Access USB computers (PC, SUN, MAC) using USB keyboards and mice, and DVI monitors.

- Features NTI's patented true autoboot USB switching – all attached USB computers can be booted simultaneously.
- Crisp and clear video resolutions to 2560x1600.
- Equipped with OSD, Liquid Crystal Display, and RS232.
- Available with optional Ethernet control.
- Features break-away audio – audio can be switched independently of video and USB.
- Cabling runs are simplified with NTI's high density KVM cables.
- Supports USB 2.0 (low/full speed) devices, in addition to keyboards and mice, such as USB touch screen monitors, SMART Board™ interactive whiteboards, or CAC card readers.
  - Additional USB device must be the same for each user.

Control Methods

Keyboard

- Scan, Broadcast, Sharing or Command modes are available from the keyboard using hot keys.

Front Panel Interface

- Locally change ports and navigate through the LCD screen with front panel buttons to execute actions.
- LCD indicates currently selected port for each user.

RS232 Control

- Female RJ45 connector.
- Baud rate 1200 through 115200.
- Address up to 15 units, all of which can be daisy-chained and controlled by one serial port.

On Screen Display (OSD)

- Use keyboard or mouse to operate the switch from menus superimposed onto the monitor.
- Select or list computers by name or port number.
- OS- and software-independent.

Ethernet Control Option

- Female RJ45 connector.
- 10/100 BaseT Ethernet interface.
- Supported protocol: HTTP, HTTPS, Telnet.
- Configuration and control can be done over the Internet via Web Server or Telnet.

Ordering Specifications

This example explains the NTI part number by breaking it down into the available options. When ordering, choose the options that you require.

Number of Users | Number of CPUs | DVI + Audio Switch | Optional Control Method

UNIMUX - _n_ X _m_ - DVIA E

E = Ethernet Control

UNIMUX-4X4-DVIA (Front and Back)

Specifications

Connectors

- Female dual link DVI-D connectors.

Hosts

- Supports USB computers (PC, SUN, MAC) with DVI video.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.

Monitor

- Supports video resolutions to 2560x1600.
- Video signal: dual link digital DVI.
- Signal bandwidth: 2.25 Gbps

Devices

- Compatible with most USB keyboards and mice.
- Keyboard and mouse are hot-pluggable.
- Supports one USB 2.0 (low/full speed) device for each user, in addition to keyboard and mouse, such as a USB touch screen monitor, SMART Board™ interactive whiteboard, or CAC card reader.
  - Additional USB device must be the same for each user.

Audio

- CD quality audio output; requires powered speakers.

Dimensions

- WxDxH (in):
  - 17.4x10.1x1.75 (without supplied rackmount kit)
  - 19x10.1x1.75 (with supplied rackmount kit)

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.

Regulatory Approvals

- CE, RoHS

Cables

- Interface cables between the computers / user devices and the switch are required for proper operation. Cables not included.
  - Use USB-DVIA-xx-MM to connect computers to the switch.
  - Use USB-DVIA-xx to connect DVI monitor, USB keyboard/mouse, speakers and additional USB device to the switch.

High Density VGA USB KVM Matrix Switch Models		
NTI Part #	# of Users	# of CPUs
UNIMUX-2X2-DVIA	2	2
UNIMUX-2X4-DVIA	2	4
UNIMUX-4X2-DVIA	4	2
UNIMUX-4X4-DVIA	4	4

VGA KVM SWITCH VIA CAT5

Control up to 64 servers in zero rack space

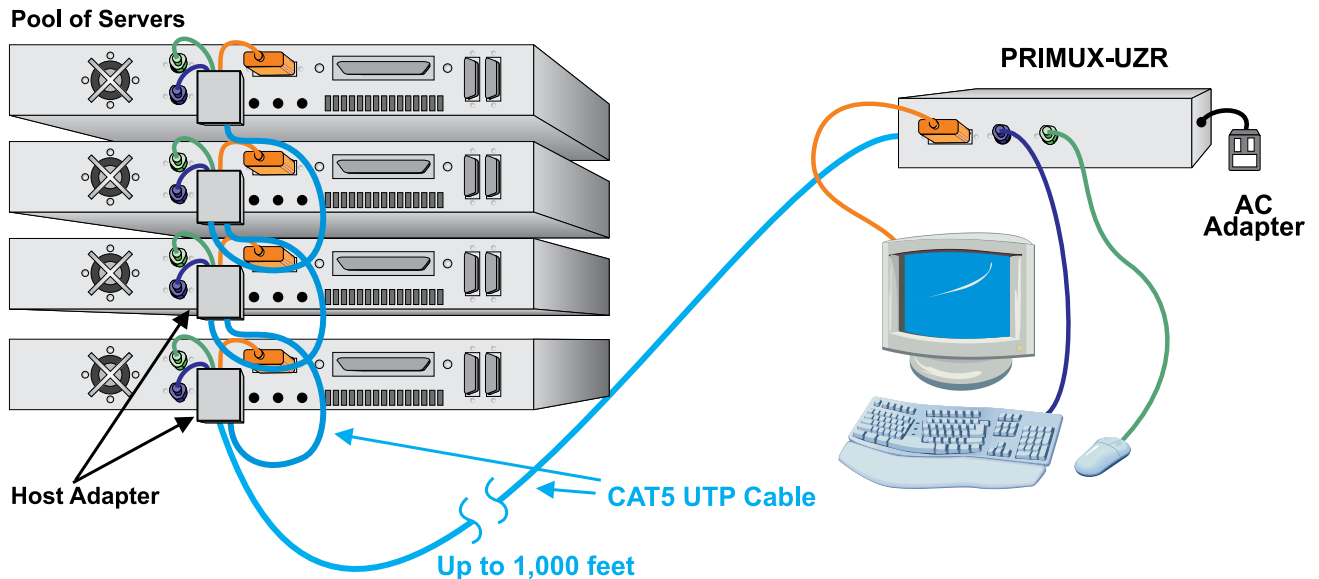**PRIMUX-UZR (Front and Back) and HA-USB Host Adapter**

Features & Applications

The PRIMUX® Zero-U VGA KVM Switch System allows you to control up to 64 computers without consuming rack space. The switch frees up valuable space by eliminating large KVM switchboxes and bulky hard-to-manage coax cables.

The PRIMUX system consists of two components: the User Station that connects to a keyboard, monitor and mouse, and Host Adapter that connects to a server. Up to 64 Host Adapters can be daisy-chained together providing user access to up to 64 servers. The User Stations and Host Adapters can be located as far as 1,000 feet from each other via CAT5/5e/6 UTP cable.

- A single, inexpensive CAT5/5e/6 UTP cable replaces bulky KVM cables.
- Interconnect multiple servers at different locations throughout a building. Servers can be the same or different platforms (PS/2, SUN, USB or serial).
- Ideal for hazardous/unsecured environments. User station can be located up to 1,000 feet from servers.
- Provides a simple daisy-chained wiring configuration.
- Easy to install and use with plug-and-play functionality.
- Hot-swap components with no disruption of server operation.

- Supports crisp and clear resolutions to 1920x1440.
- Dedicated microprocessors prevent computers from locking up, ensuring reliable control.
- Keep-alive keyboard/mouse emulation for flawless operation.
- OSD provides fine tuning for optimal video quality.
- Color-coded LEDs on both the local and remote units indicate power status and verify communication between the units.
- Automatically adjusts the video quality to compensate for varying lengths of CAT5/5e/6 cable.
- Configuration is saved and restored even if unit loses power.

Configuration and Cable Illustration

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Control up to 64 servers in zero rack space

Specifications

User Station

Monitor

- Female 15-pin HD connector.
- Supports resolutions to 1920x1440.
- A multiscan VGA monitor is required to display the different video outputs from different platforms.
- Supports Separate and Composite TTL level sync.
- Supports the DDC2B protocol.

Devices

- Two female USB Type A and two female 6-pin miniDIN connectors.
- Keyboard and mouse are hot-pluggable.
- User keyboard and mouse must be of the same platform – both USB or PS/2.
- Supports all standard PS/2 keyboards and most USB keyboards with Windows or SUN keyboard layout.
- Supports standard 2-button PS/2 mice, as well as other styles.
- Supports most USB mice (up to 3 buttons).
- USB SUN 3-button mice are supported.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 10W

Regulatory Approvals

- CE, RoHS

Control Methods

On Screen Display (OSD)

- Locate and select computers by name, comment, index or ID.
- Displays the platform, name, and power status of the daisy-chained computers.
- Allows color skew compensation and video compensation fine tuning for optimal video quality.
- OS and software-independent.

Security

- Add or remove authorized users.
- Set individual user names and passwords for each user.
- Administrator can enable or disable all security features and select which computers each user can access.

Front Panel Interface

- Locally change ports with front panel buttons.
- Provides eight "favorites" buttons allowing the user to program buttons to select frequently used computers.

Keyboard

- Use the keyboard to command the user station to select ports or configure the Scan delay.
- **Scan Mode** automatically and sequentially displays the video from each powered-on computer.
- **Command Mode** allows the user to give instructions to the switch through the keyboard.

Host Adapters

Hosts

- A maximum of 64 host computers can be daisy-chained together.
- One platform-specific (PS/2, SUN, USB or serial) HA-x host adapter is required for each computer.

HA-PS2

- Compatible with legacy PS/2 computers with VGA video.
- One male 15-pin HD and two male 6-pin miniDIN connectors.

HA-SUN

- Compatible with legacy SUN computers with VGA video.
- One male 15-pin HD and one male 8-pin miniDIN connectors.

HA-USB

- Compatible with USB computers (PC, SUN, MAC) with VGA video.
- One male 15-pin HD and one male USB Type A connectors.

HA-RS

- Compatible with most serial devices with an RS232 port.
- One female RJ45 EIA-232 serial port connector.
- Supported signals: TXD, RXD, DSR, DTR, CTS, RTS, DCD

Power

- HA-PS2/HA-SUN/HA-USB: Power provided by the host computer.
- HA-RS: Power provided by the host serial device via USB Type A connector.

Regulatory Approvals

- RoHS

Cables

- To daisy chain host adapters and user station, use CAT5/5e/6 UTP straight through cable for TIA/EIA-568B wiring with standard RJ45 connectors. Cables not included.

Distances and Resolutions for CAT5/CAT5e and CAT6 Cables

Cable	Distance (feet)	Resolution
CAT5/CAT5e (UTP)	1000	1024x768 at 60Hz
	700	1280x1024 at 60Hz
	500	1600x1200 at 60Hz
	400	1920x1440 at 60Hz
CAT6 (UTP)	800	1024x768 at 60Hz
	600	1280x1024 at 60Hz
	500	1600x1200 at 60Hz
	350	1920x1440 at 60Hz

User Station and Host Adapter Models

NTI Part #	Platform	Function	Size WxDxH (in)
PRIMUX-UZR	PS/2, SUN, USB, Serial	User Station	11x11x1.75
HA-PS2	PS/2	Host Adapter	2.1x3.7x1.0
HA-USB	USB	Host Adapter	2.1x3.7x1.0
HA-SUN	SUN	Host Adapter	2.1x3.7x1.0
HA-RS	Serial	Host Adapter	2.1x3.5x0.9

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VGA KVM MATRIX SWITCH VIA CAT5

Consolidated control for multi-user, multi-rack server environment up to 1,000 feet away

PRIMUX-16X64 (Front and Back)

Features & Applications

The PRIMUX® KVM Matrix Switch via CAT5 provides non-blocking access for up to 16 simultaneous users to up to 64 servers. The switch frees up valuable space by eliminating large KVM switchboxes and bulky hard-to-manage coax cables. It is an ideal solution for high-density server environments.

The PRIMUX system consists of three components: Matrix Switch, connects users to servers; Host Adapters, connect to each server; and User Stations, connect to each set of user-station equipment — keyboard, monitor and mouse. The User Stations and Host Adapters can be located as far as 1,000 feet from each other, and are connected to the matrix switch via CAT5/5e/6 UTP cable.

- Multi-user, multi-platform, multi-rack access.
- Platform-specific host adapters for host connection – PS/2, USB, SUN, serial.
- Ideal for hazardous/unsecured environments. The User Stations can be located up to 1,000 feet from the servers.
- Inexpensive CAT5/5e/6 UTP cable replaces bulky KVM cables.
- Simple plug-and-play auto-configured installation.
  - Servers are discovered as they are powered up, and can be accessed immediately by authorized users.
- Hot-swap components with no disruption of server operation.

- Supports video resolutions to 1920x1440.
- Automatically adjusts the video quality to compensate for varying lengths of CAT5/5e/6 cable.
- Dedicated microprocessors prevent CPUs from locking up, ensuring reliable control.
- Real time power status of connected servers.
- Provides connection to servers during power up at the BIOS level.
- Command and control provided by OSD of connected User Station.
- Flash upgradeable.

Specifications

Matrix Switch

Connectors

- Female RJ45 input/output connectors.
- Female RJ45 Ethernet connector.
  - 10/100BaseT Ethernet interface.
- Male DB9 connector.
- Female SCSI 68-pin connector.

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.

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.

See pages 56-57 for the PRIMUX User Station specifications.

Host Adapters

Hosts

- One platform-specific (USB + PS/2, SUN, Serial) HA-x host adapter is required for each computer.

  HA-UNV

  - Compatible with PS/2 and USB computers with VGA video.
  - One male 15-pin HD, one male 6-pin miniDIN, and one male USB Type A connectors.
    - Includes a female USB Type A to male 6-pin miniDIN adapter.

  HA-SUN

  - Compatible with legacy SUN computers with VGA video.
  - One male 15-pin HD and one male 8-pin miniDIN connectors.

  HA-RS

  - Compatible with most serial devices with an RS232 port.
  - One female RJ45 EIA-232 serial port connector.
  - Supported signals: TXD, RXD, DSR, DTR, CTS, RTS
  - Emulates an ASCII terminal – converts serial data from ASCII device into VGA video
    - 800x600 @ 60Hz signal.
  - Screen size: 80 characters wide by 30 lines
  - Selectable baud rate: up to 115200

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Consolidated control for multi-user, multi-rack server environment up to 1,000 feet away

HA-UNV

Configuration and Cable Illustration

CAT5/5e/6 Cable

Host Adapter

PRIMUX-8X32

PRIMUX-UZR User Station

Control Methods

On Screen Display

- Use keyboard or mouse to operate the switch from menus superimposed onto the monitor.
- Displays the platform, name, and power status of the connected servers.
- Allows color skew and video compensation fine tuning for optimal video quality.
- Locate and select servers by name.
- Names can be up to 16 characters long.
- Help Screens assist users with OSD.
- Modify the size and position of the OSD.
- OS- and software-independent.
- Various administrator configuration features, including users, servers and user stations.

Security

- Administrator can enable or disable all security features and select which servers each user can access.
- Add or remove authorized users.
- Set individual user names and passwords for each user.

Modes of Operation

- **Normal** – a user connected to a host.
- **Scan** – user is subsequently connected to hosts from a list.
- **Sharing** – the administrator can select for each host a sharing attribute, which defines multiple user access to the host.
  - **None (not shared)** – one user is connected to the host and controls it. No other user may select nor control that host.
  - **Limited (video shared)** – one user is connected to and controls the host. Other users may select and see the video output from the host, but not control the host.
  - **Full (shared)** – a host may be selected by many users; the host is still controlled by one user, but its control may be given to any other user after an inactivity timeout (share idle time).

RS232

- Configuration can be done through the serial port.
- Baud rate: 115200.

Ethernet Control

- Configuration can be done over the Internet via Telnet.
- 10/100 BaseT Ethernet interface.

Cables

- Use CAT5/5e/6 UTP cable to connect Host Adapters and User Stations to the switch.
- Cables not included.
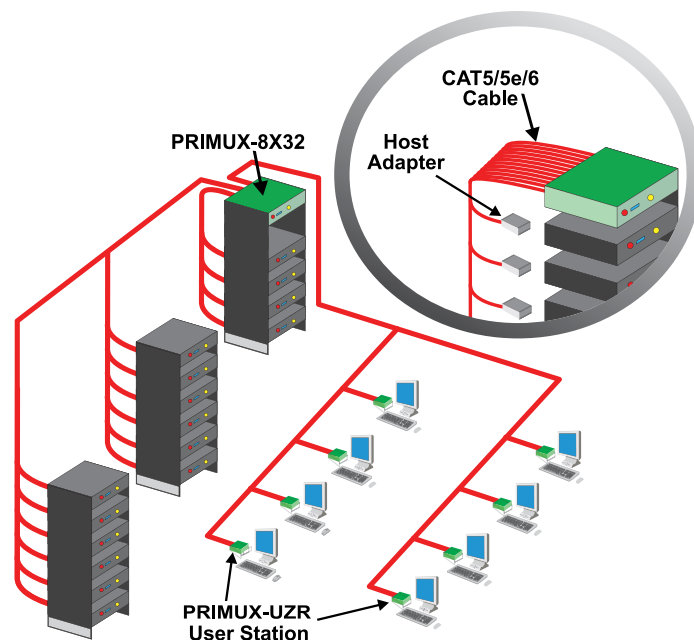
Distances and Resolutions for CAT5/CAT5e and CAT6 Cables

Cable	Distance (feet)	Resolution
CAT5/CAT5e (UTP)	1000	1024x768 at 60Hz
	700	1280x1024 at 60Hz
	500	1600x1200 at 60Hz
	400	1920x1440 at 60Hz
CAT6 (UTP)	800	1024x768 at 60Hz
	600	1280x1024 at 60Hz
	500	1600x1200 at 60Hz
	350	1920x1440 at 60Hz

KVM Matrix Switch via CAT5 Models

NTI Part #	# of Users	# of CPUs	Rack Units	Size WxDxH (in)
PRIMUX-8X32	8	32	1RU	19x12x1.75
PRIMUX-16X64	16	64	2RU	19x12x3.5

User Station

NTI Part #	Description	Size WxDxH (in)
PRIMUX-UZR-M	User Station	11x11x1.75

Host Adapter Models

NTI Part #	Platform	Size WxDxH (in)
HA-UNV	USB + PS/2	1.5x3.0x0.8
HA-SUN	SUN	2.1x3.7x1.0
HA-RS	Serial RS232	2.1x3.5x0.9

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LEGACY SUN PC KVM SWITCH

Control up to 32 PC and SUN computers

Features & Applications

The NODEMUX® Legacy SUN PC KVM Switch allows one keyboard, monitor and mouse to control up to 32 computers. Dedicated internal microprocessors emulate keyboard and mouse presence to each attached computer 100% of the time, so all computers boot error-free.

- Compatible with legacy PS/2 and SUN computers.
- Supports crisp and clear 1900x1200 video resolution.
- Available with touch screen options.
- Well developed code – supports more keyboards, mice and computers than any other KVM.

ST-8UO (Front and Back)

Specifications

Hosts

- Female 15-pin HD and female 8-pin miniDIN connectors.
- Supports legacy PS/2 and SUN computers.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Solaris x86, Linux, and FreeBSD.

Monitor

- Supports 1900x1200 resolution.
- Female 15-pin HD connector.
- A multiscan VGA monitor is required to display the different video outputs from different platforms.
- Bandwidth is 150 MHz.

Devices

- Female 8-pin miniDIN connectors.
- User devices can be PS/2 or SUN.
- Keyboard and mouse are hot-pluggable.
- User keyboard and mouse must be of the same platform.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC Adapter.
- The smaller models use AC adapters as their power source.
  Regulatory Approvals
- CE, RoHS (CE available on all models except ST-2U.)

Control Methods

Front Panel Interface

- Touch a button and be connected to a CPU or change modes of operation.
- LEDs indicate currently selected port and mode of operation.

RS232

- Female DB9 connector.
- Baud rate 300 through 9600.

Keyboard

- **Scan Mode, Broadcast Mode** or **Command Mode** are available from keyboard.

On Screen Display (OSD)

- Use keyboard or mouse to operate switch from menus superimposed onto your monitor.
- Select or list computers by name or port number.
- OS and software independent.
- OSD built into the switch – no need to install additional hardware or software.

Ordering Specifications

This example explains the NTI part number by breaking it down into the available options. When ordering, choose the options that you require.

ST - **x** **U** **O** **A** **TS**

Number of Ports
"x" = 2, 4, 8, 16, 32

Universal KVM Switch

Standard Control Method
O = OSD
Not available on 2-port switch

Optional Audio

Optional Touch Screen Support
Available on 2-, 4- and 8-port switches.

SUN PC KVM Switch Models				
NTI Part #	# of CPUs	Desktop Size WxDxH (in)	Rack Units	Rack Size WxDxH (in)
ST-2U	2	8x6.2x2.6	NA	NA
ST-2UR	2	NA	1RU	19x10x1.75
ST-4UO	4	13.3x5.9x1.75 (without rackmount kit)	1RU	19x10x1.75 (with rackmount kit)
ST-8UO	8	13.3x5.9x1.75 (without rackmount kit)	1RU	19x10x1.75 (with rackmount kit)
ST-16UO	16	NA	2RU	19x10x3.5
ST-32UO	32	NA	4RU	19x10x7

Cables

- Interface cables between your computers and the switch are required for proper operation. Cables not included.
- Refer to www.networktechinc.com/srvsw-stu.html for necessary cables.

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LEGACY VGA SUN PC KVM MATRIX SWITCH

Up to eight users can control 32 PC and SUN computers

Features & Applications

The NODEMUX® Legacy VGA SUN PC Multi-Platform KVM Matrix Switch enables up to eight users to individually command or simultaneously share up to 32 legacy PC and SUN computers (and USB computers with NTI adapters).

- Equipped with On Screen Display (OSD), Liquid Crystal Display (LCD) and RS232 control.
- Users can power-down the switch without rebooting attached computers.
- Dedicated microprocessors prevent computers from locking up, ensuring reliable control.
- The high density switches save you rack space. Cabling runs are simplified with NTI's high density KVM switch cables.

Built-In Control Methods

Front Panel Interface

- Locally change ports with front panel keypad.
- LCD indicates currently selected port.
- Save and recall up to 10 different user-to-computer configurations.

RS232 Control

- Baud rate 1200 through 9600.
- Address up to 15 units, all of which can be RS232 daisy-chained and controlled by one serial port.

On Screen Display (OSD)

- Locate and select computers by name.
- OS and software-independent.
- OSD is built into the switch – no need to install additional hardware or software.
- Advanced security included with switch.

<table>
<tr><th colspan="6">VGA SUN PC KVM Matrix Switch Models</th></tr>
<tr><th>NTI
Part #</th><th># of
Users (n)</th><th># of
CPUs (m)</th><th>Desktop Size
WxDxH (in)</th><th>Rack
Units</th><th>Rack Size
WxDxH (in)</th></tr>
<tr><td>ST-2X2-U</td><td>2</td><td>2</td><td>NA</td><td>1RU</td><td>19x10x1.75</td></tr>
<tr><td>ST-2X2-UDT</td><td>2</td><td>2</td><td>10x7.5x3.3</td><td>NA</td><td>NA</td></tr>
<tr><td>ST-2X4-U</td><td>2</td><td>4</td><td>NA</td><td>1RU</td><td>19x10x1.75</td></tr>
<tr><td>ST-2X4-UDT</td><td>2</td><td>4</td><td>10x7.5x3.3</td><td>NA</td><td>NA</td></tr>
<tr><td>ST-2X8-UDT</td><td>2</td><td>8</td><td>10x7.5x3.3</td><td>NA</td><td>NA</td></tr>
<tr><td>ST-2X32-U</td><td>2</td><td>32</td><td>NA</td><td>3RU</td><td>19x12x5.25</td></tr>
<tr><td>ST-4X8-UDT</td><td>4</td><td>8</td><td>10x7.5x3.3</td><td>NA</td><td>NA</td></tr>
<tr><td>ST-4X32-U</td><td>4</td><td>32</td><td>NA</td><td>3RU</td><td>19x12x5.25</td></tr>
<tr><td>ST-8X8-U</td><td>8</td><td>8</td><td>NA</td><td>3RU</td><td>19x12x5.25</td></tr>
<tr><td>ST-8X16-U</td><td>8</td><td>16</td><td>NA</td><td>3RU</td><td>19x12x5.25</td></tr>
<tr><td>ST-8X24-U</td><td>8</td><td>24</td><td>NA</td><td>3RU</td><td>19x12x5.25</td></tr>
<tr><td>ST-8X32-U</td><td>8</td><td>32</td><td>NA</td><td>3RU</td><td>19x12x5.25</td></tr>
</table>

<table>
<tr><th colspan="5">High Density VGA SUN PC KVM Matrix
Switch Models</th></tr>
<tr><th>NTI
Part #</th><th># of
Users (n)</th><th># of
CPUs (m)</th><th>Rack
Units</th><th>Rack Size
WxDxH (in)</th></tr>
<tr><td>ST-2X8-UHD</td><td>2</td><td>8</td><td>1RU</td><td>19x12.5x1.75</td></tr>
<tr><td>ST-2X16-UHD</td><td>2</td><td>16</td><td>1RU</td><td>19x12.5x1.75</td></tr>
<tr><td>ST-4X8-UHD</td><td>4</td><td>8</td><td>1RU</td><td>19x12.5x1.75</td></tr>
<tr><td>ST-4X16-UHD</td><td>4</td><td>16</td><td>1RU</td><td>19x12.5x1.75</td></tr>
</table>

1.75" or 1RU

NODEMUX® ST-4X16-UHD High Density Matrix KVM Switch (Front and Back)

4 Users and 16 Computers in 1RU

Specifications

Hosts

- Supports legacy PS/2 and SUN computers with VGA video.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, and FreeBSD.
- Any USB computer (PC or SUN) can be connected by using a USB-PS2 or USB-SUN adapter.

Connectors

- ST-nXm-U: female 15-pin HD and female 8-pin miniDIN connectors.
- ST-nXm-UHD: female 26-pin SCSI II connectors.

Monitor

- Crisp and clear 1900x1200 video resolution.
- A multiscan VGA monitor is required to display the different video outputs from different platforms.
- Bandwidth is 150 MHz.

Devices

- User devices can be PS/2 or SUN.
- Keyboards and mice are hot-pluggable.
- Keystrokes are translated across platforms.

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.
- The 2x2, 2x4, 2x8 and 4x8 units use AC adapters as their power source.

Regulatory Approvals

- Rackmount units: CE, RoHS
- Desktop units: RoHS

Cables

- NTI universal cables for connecting user devices and computers to the NODEMUX ST-nXm-U are required for proper operation.
- Cables not included.
- Refer to www.networktechinc.com/srvsw-st-u.html for necessary cables.

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www.networktechinc.com/srvsw-st-u.html

RACKMOUNT USB + PS/2 KVM DRAWER

Provides space-saving, convenient control

Available Models:
- **VGA or DVI LCD**
  - **15" or 17"**
- **Optional Integrated KVM Switch**

RACKMUX-V17-N (Front and Back)

Features & Applications

The RACKMUX® USB + PS/2 KVM Drawer combines a rackmount LCD monitor, keyboard, and touchpad mouse in a space-saving 1RU industrial strength drawer.

- Available with a forward-folding 15" or 17" Active Matrix LCD flat panel VGA or DVI monitor.
  - Tilt LCD up and back to adjust to any comfortable viewing angle to 120°
  - Optional sunlight readable monitor available.
- Compatible with USB and PS/2 computers.
- Torque-friction hinges – monitor does not wobble, spring, or slam shut.
- Compact, heavy-duty tactile keyboard.
- Drawer locks into place when open to prevent it from sliding in and out of the rack.
  - Front quick-release latches for pushing the drawer back into the rack.

- High quality, rugged steel construction with durable powder coat finish.
- LCD auto-shutoff in closed position.
- Internal cable arm provides proper cable management for sliding the drawer open and closed.
- Equipped with On Screen Display (OSD).
- Front panel security lock.
- Front panel USB port to connect an external USB 2.0 (low/full speed) device, such as a flash drive.
- Available with optional mounting bracket for two-post style telco rack.

Configuration and Cable Illustration

SUN

USBVEXT-xx-MM

MAC

PC

UNIMUX
USB KVM Switch

Tilt: up to 120°

2.6" Clearance

18 inch

RACKMUX-V17

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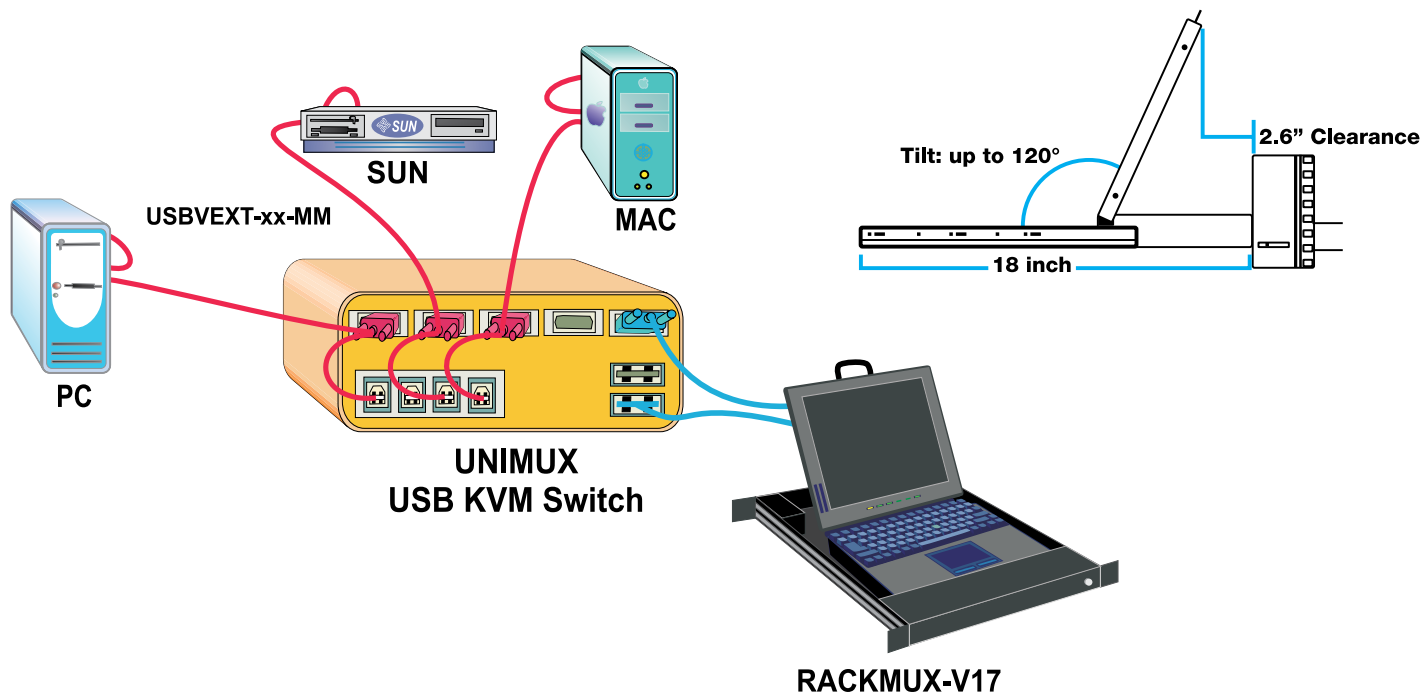
RACKMOUNT USB + PS/2 KVM DRAWER

Provides space-saving, convenient control

Specifications

Host Interface

- Compatible with PS/2, UNIX and USB computers.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- One female 15-pin HD connector for VGA models and one female DVI-I connector for DVI models.
- One female USB Type B and two female 6-pin minDIN connectors.
- Use with NTI Multi-Platform KVM Switches to control multiple PC, SUN and MAC computers.

Monitor

- Forward-folding 15" or 17" Active Matrix LCD flat panel VGA or DVI monitor.
- 1024x768 video resolution for 15" monitor.
- 1280x1024 video resolution for 17" monitor.
- Tilt: up to 120°.
- Optional 17" sunlight readable monitor available (RACKMUX-V17-NS, RACKMUX-D17-NS)
- Frequency:
  - RACKMUX-V/D15-N, RACKMUX-V/D17-N:
    - Horizontal: 31 to 80 KHz
    - Vertical: 55 to 76 Hz.
  - RACKMUX-V/D17-NS:
    - Horizontal: 53 to 79 KHz
    - Vertical: 50 to 75 Hz.
- Brightness:
  - RACKMUX-V/D15-N: 250 nits
  - RACKMUX-V/D17-N: 300 nits
  - RACKMUX-V/D17-NS: 500 nits indoors, 1100 nits outdoors (80K lux)
- Contrast Ratio:
  - RACKMUX-V/D15-N, RACKMUX-V/D17-N: 500:1
  - RACKMUX-V/D17-NS: 800:1
- Supports DDC1 and DDC2B protocols.
- OSD controls for brightness, contrast, phase, pitch, Horz- and Vert-center alignment, zoom and color adjustment.

Devices

- Keyboard available in multiple languages: English (US), English (UK), French, German, Italian, Spanish, Turkish.
- 104-key keyboard with numeric keypad.
- Three button touchpad mouse.
- Front panel USB 2.0 (low/full speed) port to connect external USB devices.
  - Female USB Type A connector.
  - USB maximum data rate: 12 Mbps
  - KVM drawer must be connected to a USB computer.
  - Available only on KVM drawers without integrated KVM switch.

Cables

- 6-foot 15-pin HD VGA male to male cable included with VGA models and 6.5-foot DVI-D male to male single link cable included with DVI models.
- 6-foot USB Type A male to USB Type B male cable included.
- 6-foot dual 6-pin miniDIN male to male keyboard/mouse cable included.
- 6-foot power supply cable included.

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.
- Power Consumption: 30W
- Maximum Inrush Current: 30A

Dimensions

- WxDxH (Inches): 19x23.9x1.75.
  - Handle adds an additional 1.5" to the depth when monitor is in closed position.
- Drawer is adjustable to various rack depths from 24" deep to 39" deep.
- Rack ears are available for two post style telco rack mounting, select part number RL-T15-TEL.

Environmental

- Operating temperature: 32°F to 104°F (0°C to 40°C).
- Storage temperature: -4°F to 140°F (-20°C to 60°C).
- Operating and Storage Relative Humidity: 20 to 90% non-condensing RH.

Regulatory Approvals

- CE, RoHS

USB + PS/2 KVM Drawer Models		
NTI Part #	Monitor	Screen Size
RACKMUX-V15-N	VGA	15"
RACKMUX-D15-N	DVI	15"
RACKMUX-V17-N	VGA	17"
RACKMUX-V17-NS	VGA, sunlight readable	17"
RACKMUX-D17-N	DVI	17"
RACKMUX-D17-NS	DVI, sunlight readable	17"
RL-T15-TEL	Mounting bracket for two-post style telco rack	

RACKMOUNT USB + PS/2 KVM DRAWER

Provides space-saving, convenient control

Optional High Density VGA USB KVM Switch Integrated into KVM Drawer

RACKMUX-V17-N-16USBHDU (Back)

- Available with a 4, 8, or 16-port high density VGA USB KVM switch.
- Supports USB computers (PC, SUN, MAC) with VGA video.
- Additional USB port to connect an external USB (low/full speed) device, such as a CAC card reader.
- Cabling runs are simplified with NTI's high density KVM switch cables (HDUSBVEXT-xx-MM).

For more information on the built-in high density VGA USB KVM switch, see pages 50-51.

KVM Drawer with Integrated High Density VGA USB KVM Switch Models

NTI Part #	Screen Size	Interface	# of CPUs
RACKMUX-V17-N-4USBHDU	17"	USB	4
RACKMUX-V17-N-8USBHDU	17"	USB	8
RACKMUX-V17-N-16USBHDU	17"	USB	16

Optional DVI USB KVM Switch Integrated into KVM Drawer

- Available with a 4, 8 or 16-port DVI USB KVM switch.
- Supports USB computers (PC, SUN, MAC) with DVI video.
- Cabling runs are simplified with NTI's high density KVM switch cables (USB-DHEXT-xx-MM).

For more information on the built-in DVI USB KVM switch, see page 54.

KVM Drawer with Integrated DVI USB KVM Switch Models

NTI Part #	Screen Size	Interface	# of CPUs
RACKMUX-D17-N-4DVIHD	17"	USB	4
RACKMUX-D17-N-8DVIHD	17"	USB	8
RACKMUX-D17-N-16DVIHD	17"	USB	16

RACKMUX-D17-N-16DVIHD (Back)

Optional VGA SUN PC KVM Switch Integrated into KVM Drawer

- Available with a 4 or 8-port VGA SUN PC KVM switch.
- Compatible with legacy PS/2 and SUN computers with VGA video.

For more information on the built-in VGA SUN PC KVM switch, see page 60.

KVM Drawer with Integrated VGA SUN PC KVM Switch Models

NTI Part #	Screen Size	Interface	# of CPUs
RACKMUX-V17-N-4UNV	17"	PS/2, SUN	4
RACKMUX-V17-N-8UNV	17"	PS/2, SUN	8

RACKMUX-V17-N-8UNV (Back)

NTI ®
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Provides space-saving, convenient control

Optional VGA CAT5 KVM Switch Integrated into KVM Drawer

RACKMUX-V17-N-PRIMUX (Back)

- Control up to 64 servers from 1,000 feet away through one built-in user console.
  - One platform-specific (PS/2, SUN, USB or serial) HA-x host adapter is required for each computer.
- Interconnect multiple servers at different locations throughout a building. Servers can be of the same or differing platforms (PS/2, SUN, USB or serial).
- Provides a simple daisy-chained wiring configuration.

For more information on the built-in VGA CAT5 KVM switch, see pages 56-57.

KVM Drawer with Integrated VGA CAT5 KVM Switch Models		
NTI Part #	Screen Size	Interface
RACKMUX-V15-N-PRIMUX	15"	PS/2, SUN, USB, Serial
RACKMUX-V17-N-PRIMUX	17"	PS/2, SUN, USB, Serial

Optional High Density VGA USB KVM Matrix Switch Integrated into KVM Drawer

NEW

RACKMUX-V17-N-2X8-USBHDU (Back)

- Available with a 2x8 or 2x16 high density VGA USB KVM matrix switch.
- Two users can control up to 16 USB computers.
- Additional USB port for each user to connect an external USB (low/full speed) device such as a CAC card reader.
- Cabling runs are simplified with NTI's high density KVM switch cables (USB-DHEXT-xx-MM).

For more information on the built-in VGA USB KVM matrix switch, see pages 52-53.

KVM Drawer with Integrated High Density VGA USB KVM Matrix Switch Models				
NTI Part #	Screen Size	Interface	# of Users	# of CPUs
RACKMUX-V17-N-2X8-USBHDU	17"	USB	2	8
RACKMUX-V17-N-2X16-USBHDU	17"	USB	2	16

Optional VGA SUN PC KVM Matrix Switch Integrated into KVM Drawer

RACKMUX-V17-N-4X16UHD (Back)

- Available with a 2x8 or 2x16 VGA SUN PC KVM matrix switch.
- Compatible with legacy PS/2 and SUN computers with VGA video.
- Two users can individually command or simultaneously share up to 16 computers.

Dimensions

- WxDxH (Inches): 19x34.4x1.75.
- Drawer is adjustable to various rack depths from 34.4" to 39".

For more information on the built-in VGA SUN PC KVM matrix switch, see page 61.

KVM Drawer with Integrated VGA SUN PC KVM Matrix Switch Models				
NTI Part #	Screen Size	Interface	# of Users	# of CPUs
RACKMUX-V17-N-2X8UHD	17"	PS/2, SUN	2	8
RACKMUX-V17-N-2X16UHD	17"	PS/2, SUN	2	16

RACKMUX®

65

RACKMOUNT SUN USB KVM DRAWER

1RU KVM drawer with SUN USB keyboard

RACKMUX-VS17-NT (Front and Back)

Features & Applications

The RACKMUX® SUN USB KVM Drawer combines a rackmount LCD monitor, SUN USB keyboard, and trackball or touchpad mouse in a space-saving 1RU industrial strength drawer.

- Forward-folding 17" Active Matrix LCD flat panel VGA monitor.
  - Tilt LCD up and back to adjust to any comfortable viewing angle to 120°.
  - Optional sunlight readable monitor available.
- Supports SUN-compatible 1152x900 resolution.
- Torque-friction hinges – monitor does not wobble, spring, or slam shut.
- Compact, heavy-duty tactile keyboard.
  - Available with 17-key numeric keypad or large wrist-rest.
- Drawer locks into place when open to prevent it from sliding in and out of the rack.

- Available with optional mounting bracket for two-post style telco rack.
- Rugged steel construction with durable powder coat finish.
- LCD auto-shutoff in closed position.
- Internal cable arm provides proper cable management for sliding the drawer open and closed.
- Equipped with On Screen Display (OSD).
- Front panel security lock.
- Front panel USB port to connect an external USB 2.0 (low/full speed) device, such as a flash drive.

Specifications

Host Interface

- Compatible with USB computers.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- One female 15-pin HD and one female USB Type B connectors.

Devices

- Keyboard available in multiple languages: English(US), English(UK), German, Italian, French, and Spanish.
  - RACKMUX-VS17-T: 97-key (US) or 98-key (UK, German, Italian, French, Spanish), SUN-compatible keyboard with wrist-pad.
  - RACKMUX-VS17-NT: 114-key (US) or 115-key (UK, German), SUN compatible keyboard with numeric keypad.
- Supports SUN keys including STOP, CUT, PASTE, COMPOSE, COPY, HELP, OPEN, UNDO, and PROPS.
- Three button trackball mouse.
- Front panel USB 2.0 (low/full speed) port to connect external USB devices.
  - Female USB Type A connector.
  - USB maximum data rate: 12 Mbps
  - Available only on KVM drawers without integrated KVM switch.

Monitor

- Forward-folding 17" Active Matrix LCD flat panel VGA monitor.
- 1280x1024 video resolution.
  - Supports SUN-compatible 1152x900 resolution.
- Tilt: up to 120°
- Sunlight readable monitor available (RACKMUX-VS17-TS, RACKMUX-VS17-NTS)
- Frequency:
  - RACKMUX-VS17-T, RACKMUX-VS17-NT:
    - Horizontal: 31 to 80 KHz
    - Vertical: 56 to 76 Hz.
  - RACKMUX-VS17-TS, RACKMUX-VS17-NTS:
    - Horizontal: 53 to 79 KHz
    - Vertical: 50 to 75 Hz.
- Brightness:
  - RACKMUX-VS17-T, RACKMUX-VS17-NT: 300 nits
  - RACKMUX-VS17-TS, RACKMUX-VS17-NTS: 500 nits indoors, 1100 nits outdoors (80K lux)
- Contrast Ratio:
  - RACKMUX-VS17-T, RACKMUX-VS17-NT: 500:1
  - RACKMUX-VS17-TS, RACKMUX-VS17-NTS: 800:1
- Supports DDC1 and DDC2B protocols.
- OSD controls for brightness, contrast, phase, pitch, Horz- and Vert-center alignment, zoom and color adjustment.

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1RU KVM drawer with SUN USB keyboard

Specifications (Continued)

Cables

- 6-foot 15-pin HD VGA male to male cable included.
- 6-foot USB Type A male to USB Type B male cable included.
- 6-foot power supply cable included.

Dimensions

- WxDxH (Inches): 19x23.9x1.75.
- Drawer is adjustable to various rack depths from 24" to 39".
- Rack ears are available for two post style telco rack mounting, select part number RL-T15-TEL.

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.
- Power Consumption: 30W
- Maximum Inrush Current: 30A

Environmental

- Operating temperature: 32°F to 104°F (0°C to 40°C).
- Storage temperature: -4°F to 140°F (-20°C to 60°C).
- Operating and Storage Relative Humidity: 20 to 90% non-condensing RH.

Regulatory Approvals

- CE, RoHS

VGA SUN USB KVM Drawer Models		
NTI Part #	**Monitor**	**Keyboard Features**
RACKMUX-VS17-T	standard	wrist-rest
RACKMUX-VS17-NT	standard	numeric keypad
RACKMUX-VS17-TS	sunlight readable	wrist-rest
RACKMUX-VS17-NTS	sunlight readable	numeric keypad
RL-T15-TEL	Mounting bracket for two-post style telco rack	

Configuration and Cable Illustration
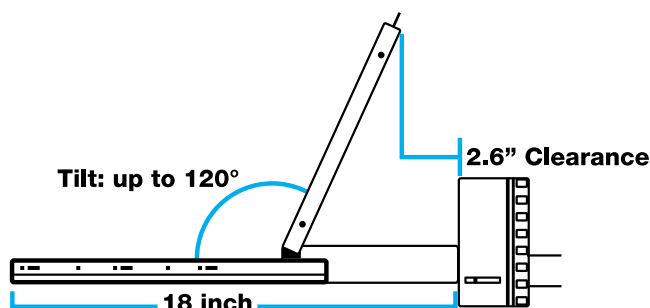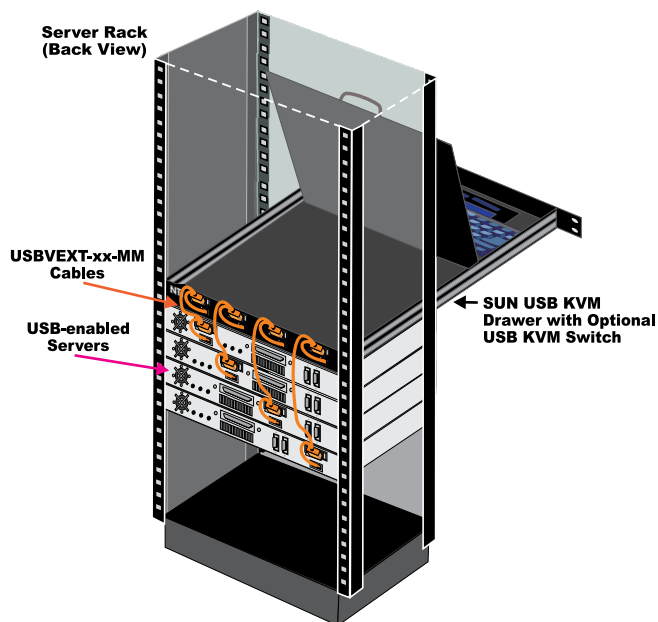
Optional VGA USB KVM Switch Integrated into SUN USB KVM Drawer

RACKMUX-VS17-NT-8USB (Back)

- Available with an 8-port VGA USB KVM switch.
- Supports USB computers (PC, SUN, MAC) with VGA video.
- Boot all USB computers in one operation with true autoboot.

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.

For more information on the built-in VGA USB KVM switch, visit www.networktechinc.com/srvsw-usbu.html.

SUN USB KVM Drawer with Integrated VGA USB KVM Switch Models			
NTI Part #	**Mouse**	**Keyboard Features**	**# of CPUs**
RACKMUX-VS17-T-8USB	trackball	NA	8
RACKMUX-VS17-NT-8USB	trackball	numeric keypad	8

RACKMUX®

www.networktechinc.com/sun-kvm-drawer.html
www.networktechinc.com/sun-kvm-drawer-switch.html

RACKMOUNT CONSOLE TERMINAL DRAWER

Provides RS232 terminal control of headless servers and IT devices

RACKMUX-T15-N (Front and Back)

Features & Applications

The RACKMUX® Terminal Drawer is the ideal solution for communicating with serial devices, such as routers, servers, bridges, firewalls, and hubs. This flexible terminal is easy to install and configure for either RS232 or Telnet communication mode.

- Forward-folding 15" LCD with 800x600 resolution.
  - Tilt LCD up and back to adjust to any comfortable viewing angle to 120°.
- Torque-friction hinges – monitor does not wobble, spring, or slam shut.
- Compact, heavy-duty tactile keyboard with large padded wrist-rest.
  - Available with 17-key numeric keypad.
- High quality, rugged steel construction with durable powder coat finish.
- Supports SUN RSC capabilities via Ethernet port.

- Serial and parallel slave-printer ports.
- Front panel security lock.
- Emulates many terminal types.
- Select from 16 foreground and 16 background colors.
- Entire unit is only 1RU (1.75") high.
- Drawer locks into place when open to prevent it from sliding in and out of the rack.
- Available with optional mounting bracket for two-post style telco rack.

Specifications

Compatibility

- Compatible with any SUN, HP or PC-based headless server.
- Communicates with serial devices, such as routers, bridges, firewalls and hubs.

Monitor

- Active Matrix TFT color 15" LCD flat panel monitor.
- 800x600 video resolution.
- Tilt: up to 120°
- Viewing angle:
  - Horizontal: 140°
  - Vertical: 125°
- Video auto-adjust for optimum image.
- OSD controls for brightness and contrast.
- 250 nits brightness and 500:1 contrast ratio typical.

Keyboard

- Keyboard available in multiple languages: English (US), English (UK), French, German, Italian, Spanish, Turkish.
  - RACKMUX-T15: 83-key (US) or 84-key (UK, French, German, Italian, Spanish) keyboard with wrist-pad.
  - RACKMUX-T15-N: 104-key (US, UK, French, German, Italian, Spanish, Turkish) keyboard with numeric keypad and wrist-pad.

Regulatory Approvals

- CE, RoHS

Terminal Emulation

- Multiple RS232 Emulations.
  - ADDS A2, PC TERM, PCG Alpha, Console ANSI, TVI910+, TV1925, VT52, VT100, VT220, WY-50+, WY-60, WY-100, WY-120, WY-325.
- Character matrix: 7x12 dot matrix in 10x16 cell with 3 dot descenders.
- Screen size: 80 characters wide by 25 lines.
- Page length: 1, 2 or 4 screens (multiple screen page length reduces maximum number of possible telnet sessions).
- Cursor: Blink or steady, block or underline.
- Modes: Full duplex, half duplex, block, half block.
- 16 foreground colors and 16 background colors.

Communication Ports

- Serial port: one DB9M RS232 port.
  - Serial baud rates: 50 to 115,200bps.
  - Data format: 7 or 8 data bits with or without parity, 1 or 2 stop bits.
  - Serial handshake: XON/XOFF, XPC, and hardware DTR.
  - Communication options: Single RS232 server connection, or up to 12 Ethernet telnet sessions to predefined IP addresses.
- Network port: One RJ45 10BaseT Ethernet port.
- Local printer ports: One DB25F Parallel and one DB9M RS232 port.

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Specifications (Continued)

Power

- 110 or 220 VAC at 50 or 60Hz via IEC connector.
- Power Consumption: 30W
- Maximum Inrush Current: 24A

Cables

- 6-foot female DB9 to male DB25 modem cable included.
- 6-foot power supply cable included.

MTBF

- RACKMUX-T15: 36,627 hrs
- RACKMUX-T15-N: 37,244 hrs

Dimensions

- WxDxH (Inches): 19x23.9x1.75.
- Drawer is adjustable to various rack depths from 24" deep to 36" deep.
- Rack ears are available for two post style telco rack mounting, select part number RL-T15-TEL.

Optional Console Switch Integrated into Terminal Drawer

The RACKMUX-T15-CSx combines a rackmount terminal and a console switch into a space-saving 1RU industrial strength drawer.

- Available with an 8- or 16-port console switch.
- Manage up to 16 serial devices, including servers, switches, routers, and telecom gear through a single interface.

For more information on the built-in console switch, see pages 96-98.

- Four cable adapters are included
  - Female DB-25 to female RJ45 console adapter.
  - Female DB-9 to female RJ45 console adapter.
  - Male DB-25 to female RJ45 console adapter.
  - Male DB-25 to female RJ45 modem adapter.

Optional SSH Secure Console Switch Integrated into Terminal Drawer

The RACKMUX-T15-Sx combines a rackmount terminal and an SSH secure console switch into a space-saving 1RU industrial strength drawer.

- Available with a 4, 8, 16, or 32-port SSH secure console switch.
- Securely and intelligently monitor and control up to 32 RS232 serial devices.
- Provides remote control of servers, switches, routers, LAN/WAN components, power supplies and PBXs through a single interface.

For more information on the built-in SSH secure console switch, see pages 93-95.

- Four cable adapters are included
  - Female DB-25 to female RJ45 console adapter.
  - Female DB-9 to female RJ45 console adapter.
  - Male DB-25 to female RJ45 console adapter.
  - Male DB-25 to female RJ45 modem adapter.

Rackmount Console Terminal Drawer Models

NTI Part #	Description
RACKMUX-T15	Terminal drawer
RACKMUX-T15-N	Terminal drawer, numeric keypad
RL-T15-TEL	Mounting bracket for two-post style telco rack

Terminal Drawer with Integrated Console Switch Models

NTI Part #	Description	# of Ports
RACKMUX-T15-CS8	Terminal drawer, console switch	8
RACKMUX-T15-N-CS8	Terminal drawer, numeric keypad, console switch	8
RACKMUX-T15-CS16	Terminal drawer, console switch	16
RACKMUX-T15-N-CS16	Terminal drawer, numeric keypad, console switch	16
RACKMUX-T15-N-S4	Terminal drawer, numeric keypad, SSH secure console switch	4
RACKMUX-T15-N-S8	Terminal drawer, numeric keypad, SSH secure console switch	8
RACKMUX-T15-N-S16	Terminal drawer, numeric keypad, SSH secure console switch	16
RACKMUX-T15-N-S32	Terminal drawer, numeric keypad, SSH secure console switch	32

RACKMOUNT USB + PS/2 KVM DRAWER WITH REAL MOUSE

Provides space-saving, convenient control with a real mouse

Features & Applications

The RACKMUX® USB + PS/2 KVM Drawer with Real Mouse combines a 17" LCD monitor, keyboard, and real mouse with mouse pocket in a space-saving 1RU industrial strength drawer. This KVM drawer is ideal for anyone who prefers using a real mouse to touchpads or trackballs.

- Allows users to store and use a real mouse.
- Compatible with USB and PS/2 computers.
- Torque-friction hinges – monitor does not wobble, spring, or slam shut.
- High quality, rugged steel construction with durable powder coat finish.
- Drawer locks into place when open to prevent it from sliding in and out of the rack.
- LCD auto-shutoff in the closed position.
- Internal cable arm provides proper cable management for sliding the drawer open and closed.
- Available with optional sunlight readable monitor.

Specifications

Host Interface

- Compatible with PS/2, UNIX and USB computers.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- 5-foot attached cables with one male 15-pin HD, two male 6-pin miniDIN and one male USB Type A connectors for connecting to host.

Monitor

- Backward-folding 17" TFT/LCD monitor.
- 1280x1024 video resolution.
- OSD controls for brightness, contrast, phase, pitch, Horz- and Vert-center alignment, zoom and color adjustment.
- Frequency:
  - Horizontal: 31 to 80 kHz.
  - Vertical: 55 to 76 Hz.
- Viewing angle:
  - Horizontal: 178º, Vertical: 178º
- Sync: H/V Separate (TTL).
- 300 nits brightness and 500: 1 contrast ratio typical.
- Supports DDC1 and DDC2B protocols.

Devices

- Keyboard available in multiple languages: English (US), English (UK), French, German, Italian, Spanish.
  - 83-key (US) or 84-key (Europe) keyboard.
- Three-button optical mouse included.

Dimensions

- WxDxH (in): 19x29.7x1.75
- Drawer is adjustable to various rack depths from 29.7" to 43".

Power

- 110 to 220 VAC at 50 or 60 Hz via AC adapter.

Regulatory Approvals

- CE, RoHS

RACKMUX-V17-MP

Optional Integrated Switch

High Density USB KVM Switch

- Available with a 4, 8 or 16-port high density USB KVM switch.
- Supports USB computers (PC, SUN, MAC).
- Dimensions WxDxH (in): 19x36.6x1.75
- Power: 110 or 220 VAC at 50 or 60 Hz via IEC connector.

For more information on the built-in high density USB KVM switch, see pages 50-51.

SUN PC KVM Switch

- Available with a 4 or 8-port VGA SUN PC KVM switch.
- Supports PS/2 and legacy SUN computers.
- Dimensions WxDxH (in): 19x35.5x1.75
- Power: 110 or 220 VAC at 50 or 60 Hz via IEC connector.

For more information on the built-in universal KVM switch, see page 60.

CAT5 KVM Switch

- Control up to 64 servers from 1,000 feet away.
  - One platform-specific (PS/2, SUN, USB, or serial) HA-x host adapter is required for each computer.
- Dimensions WxDxH (in): 19x35.5x1.75
- Power: 110 or 220 VAC at 50 or 60 Hz via IEC connector.

For more information on the built-in CAT5 KVM switch, see pages 56-57.

High Density USB KVM Matrix Switch

- Available with a 2x8 or 2x16 high density USB KVM matrix switch.
- Supports USB computers (PC, SUN, MAC).
- Dimensions WxDxH (in): 19x47.8x1.75
- Power: 110 or 220 VAC at 50 or 60 Hz via IEC connector.

For more information on the built-in high density USB KVM matrix switch, see pages 52-53.

SUN PC KVM Matrix Switch

- Available with a 2x8 or 2x16 SUN PC KVM matrix switch.
- Supports PS/2 and legacy SUN computers.
- Dimensions WxDxH (in): 19x47.8x1.75
- Power: 110 or 220 VAC at 50 or 60 Hz via IEC connector.

For more information on the built-in universal KVM matrix switch, see pages 61.

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RACKMOUNT KEYBOARD MOUSE DRAWER

1RU PS/2, USB, and SUN USB keyboard drawers with trackball mouse

Available Models:

- **PS/2**
- **USB**
- **SUN USB**

RACKMUX-KT

Features & Applications

The Rackmount Keyboard Mouse Drawer combines a PS/2 or USB keyboard and trackball mouse in a space-saving 1RU industrial strength drawer.

- Available in PS/2, USB, and SUN USB models.
- Front panel security lock.
- Designed to fit in a standard 19" rack/cabinet.

- Large padded wrist-rest. (Available on RACKMUX-KT and RACKMUX-UKT)

Specifications

PS/2 Keyboard Drawer

- PS/2 keyboard integrated with trackball.
- Compatible with all PS/2 and UNIX computers.
- Built-in cursor keys and numeric keys.
- 95-key US layout keyboard.
- Logitech 19mm optical trackball.
- Large padded wrist-rest.
- Dimensions WxDxH (in.): 19x14.7x1.75
- Drawer is adjustable to various rack depths from 14.7" to 25.9".

USB Keyboard Drawer

- USB keyboard integrated with trackball.
- Compatible with all USB computers (PC, SUN, MAC).
- Built-in cursor keys and numeric keys.
- 95-key US layout keyboard.
- Logitech 19mm optical trackball.
- Large padded wrist-rest.
- Dimensions WxDxH (in.): 19x21.6x1.75
- Drawer is adjustable to various rack depths from 21.6" to 31.3".

SUN USB Keyboard Drawer

- SUN USB keyboard integrated with trackball.
- Compatible with all USB computers (PC, SUN, MAC).
- Built-in cursor keys and numeric keys.
- 104-key SUN-compatible US layout keyboard.
- Supports SUN keys, including Stop, Cut, Paste, Compose, etc.
- Logitech 19mm optical trackball.
- Dimensions WxDxH (in.): 19x21.6x1.75
- Drawer is adjustable to various rack depths from 21.6" to 31.3".

Environmental

- Operating temperature: 32°F to 122°F (0°C to 50°C).
- Storage temperature: -4°F to 140°F (-20°C to 60°C).
- Operating Relative Humidity: 10% to 85% RH.

Regulatory Approvals

- RoHS

Cables

- Keyboard/mouse proprietary cable.

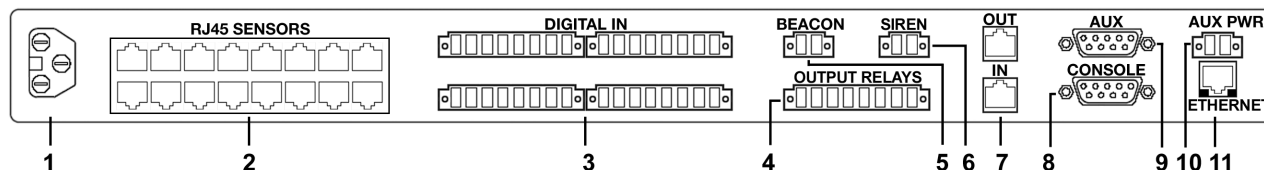| Rackmount Keyboard Drawer Models	
NTI Part#	**Description**
RACKMUX-KT	PS/2 rackmount keyboard drawer
RACKMUX-UKT	USB rackmount keyboard drawer
RACKMUX-USKT	SUN USB rackmount keyboard drawer

ENTERPRISE SERVER ENVIRONMENT MONITORING SYSTEM

SNMP and Web monitoring/management of server room environments

Monitors Threats:
- **Temperature**
- **Humidity**
- **Water Leakage**
- **Power**
- **Intrusion**
- **Smoke**
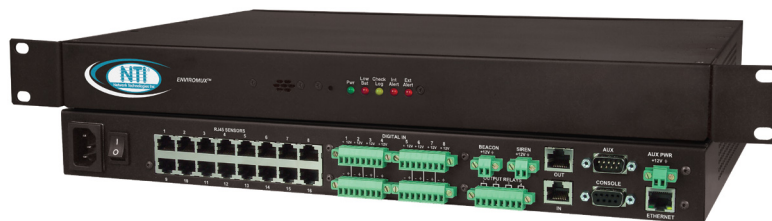
ENVIROMUX-SEMS-16 (Front and Back)

Features & Applications

The ENVIROMUX® Server Environment Monitoring System monitors critical environmental conditions, such as temperature, humidity, liquid water presence, power, intrusion, and smoke. When a sensor goes out of range of a configurable threshold, the system will notify you via email, LEDs, alarm beacon, siren, web page, network management (SNMP), voice phone calls (via Automatic Voice Dialer System), and SMS messages (via external GSM or 3G modem).

The system includes three internal sensors: temperature, humidity and power. It also supports 16 external configurable sensors and eight digital input sensors.

- Monitor and manage server room environmental and security conditions over IP.
- Create alarm signals with customized input parameters.
- Four output relays for control of external devices.
  - Relays activate upon alarm or via the user interface.
- Supports IP network video cameras for live view of any facility.
  - One integrated view – see different Web cameras side-by-side with physical and environmental parameters.
- Monitor (ping) up to 64 IP network devices.
  - Alerts are sent if devices are not responding.
- Integrates with various Open Source monitoring packages – Nagios and MRTG.
  - For NTI Nagios plugin, refer to www.networktechinc.com/nagios-plugin.html
- Provides power supply for all sensors.
- Available with optional dual power for connection to two separate power sources.

- Available sensors include: temperature, humidity, smoke, water, glass break, motion, vibration, 4-20mA converter, voltage detector, and more. See pages 75 to 78 for details.
- Internal battery backup.
  - Alerts are sent when there is a power outage and when power returns.
- Available with optional 48VDC or 24VDC power.
- Up to four units can be used together to increase the number of sensors connected.
  - Connect the units using CAT5 expansion cables.
  - Uses a single Web interface for all systems connected.
- Use in data centers, co-lo sites, web hosting facilities, telecom switching sites, POP sites, server closets, or any unmanned area that needs to be monitored.
- Optional intuitive graphical software provides an easy-to-use, unified interface for both monitoring and configuring up to 3,000 ENVIROMUX-SEMS-16 units and all connected sensors.

Specifications

Protocols

- HTTP, SNMP V1/V2c, SMTP, TCP/IP, Syslog, SNTP, Telnet, DHCP, SSL
- Operates and configures via HTTP/HTTPS web page, Telnet or RS232 interface.
- Alerts are sent using email, syslog, SMS messages and/or SNMP traps when any monitored environmental condition goes out of range of a user-specified range.
  - Alerts are posted in message log, which is accessible through Web user interface.
  - Sends notifications of alerts to a maximum of 17 email addresses, SNMP addresses and/or cell phone numbers.
  - SNMP traps have unique OID's (Object Identifiers) for each sensor.

Internal Temperature Sensor

- Applications from 32°F to 104°F (0°C to 40°C).
- Accurate to within ±1.35°F (±0.75°C).

Internal Humidity Sensor

- Applications from 20% to 80% relative humidity at temperatures between 32°F to 104°F (0°C to 40°C).
- Accurate to within ±5% relative humidity.

Internal Power Sensor

- Measures mains voltage: 0 to 255 VAC.
- Measures battery voltage: 0 to 20 VDC
- Alerts are sent when there is a power outage and when power returns.

Back-up Battery

- Rechargable sealed lead-acid battery.
- Provides back-up for one hour.

Dimensions

- WxDxH (in.): 19x9.5x1.75

MTBF

- ENVIROMUX-SEMS-16: 56,709 hrs.

Environmental

- Operating temperature: 32°F to 100°F (0°C to 38°C).
- Storage temperature: -22°F to 140°F (-30°C to 60°C).
- Operating/Storage Relative Humidity: 17 to 90% non-condensing RH.

Regulatory Approvals

- CE, RoHS

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SNMP and Web monitoring/management of server room environments

Specifications (Continued)

1. Power Port
- 110 or 230 VAC at 50 or 60 Hz via IEC connector.
- Power consumption: 100W max.
- Connection for Earth Ground.
- Fuse protection.
- Optional 48VDC power (not shown).
  - ◆ Accepts 36~72VDC (48VDC nominal).
- Optional 24VDC power (not shown).
  - ◆ Accepts 20~32VDC (24VDC nominal).
- Optional dual power (not shown).
  - ◆ Available on AC, 48VDC, and 24VDC models.
  - ◆ If the first power source fails, the unit will automatically, without interruption, switch over to the second power source before switching to the battery backup.

2. RJ45 Sensor Ports
- Sixteen RJ45 modular jacks.

3. Digital Inputs
- Eight screw terminals pairs for connecting dry contact devices.
- Input voltage: 0VDC to +25VDC.
- Provides +12VDC, 50mA.
- Fuse protection.

4. Output Relays
- Four screw terminal pairs.
- Potential-free relay switch contacts.
- Maximum switching load: 0.5A at 100VAC, 1A at 30VDC

5. Beacon Port
- One screw terminal pair.
- Provides +12VDC, 180mA to supply an alarm beacon.
- Fuse protection.

6. Siren Port
- One screw terminal pair.
- Provides +12VDC, 130mA to supply a siren.
- Fuse protection

7. Expansion Ports
- Two RJ45 jacks.
- A maximum of 4 systems can be cascaded to increase the number of sensor ports.
- Uses a single Web interface for all systems connected.

8. Console Port
- One female DB9 RS232 serial port for terminal access.

9. AUX Port
- One male DB9 RS232 serial port for controlling and monitoring external equipment, such as a GSM modem.
  - ◆ GSM modems supported: Teltonika WirelessCom/G10, Enfora GSM1218, MultiTech MTCBA-G-F2, Wavecom Fastrack M1306
  - ◆ 3G modem supported: NetComm N3GS003

10. AUX Power Port
- Provides +12VDC, 150mA.
- Fuse protection

11. Ethernet Port
- One 10/100 Base-T Ethernet port with female RJ45 connector.

Configuration and Cable Illustration
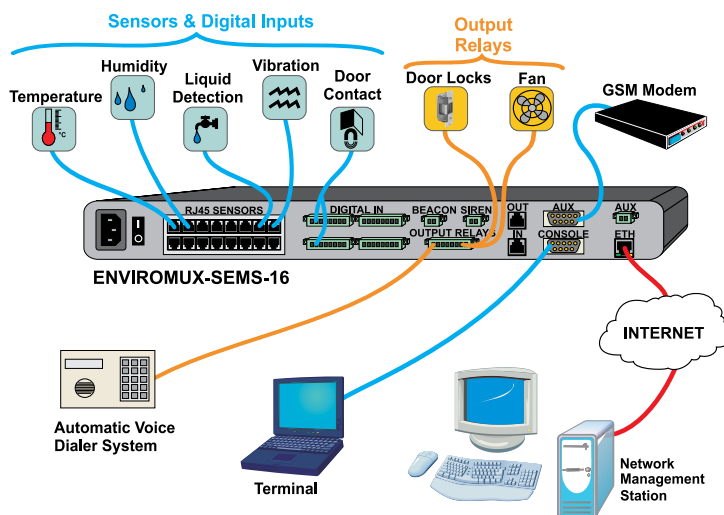
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SNMP and Web monitoring/management of server room environments

Control Methods

Web Interface

- Full configuration via Web page.
- Support for extended ASCII characters.
- Configure sensor thresholds and timing, alarm methods, alert formats and system data log.
- View current sensor values and alert status.
  - All sensors connected to the ENVIROMUX-SEMS-16 can be viewed on one summary page.
  - "Simulate"/"Clear" buttons for each sensor to test alert settings.
- View entries stored in the system data log.
  - The log can be downloaded as a tab-delimited plain text file and/or sent to an external syslog server.
- Configure IP information (address, subnet mask, default gateway, DNS, etc.) and user administrative settings.
- Administrate up to 16 users plus a root administrator.
- Permissions, schedule and alert methods are configurable for each user.
- Up to 8 users can access the web page at one time.

Telnet

- Similar functions as RS232 Control.
- Security is ensured by password.

Optional Management Software

- Intuitive graphical software provides an easy-to-use, unified interface for both monitoring and configuring up to 3,000 ENVIROMUX-SEMS-16 units and all connected sensors.
- Units may be monitored and configured individually or in a group.
- Display values and status for individual sensors or list of sensors.
- Client/server architecture
  - Server application actively polls all units for status information as well as listen for alerts from all units.
  - Client application communicates with the server to read statuses and to deploy configuration changes.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- Requires Java Runtime Environment 1.5 or later.

Server Environment Monitoring System Models

NTI Part #	Power
ENVIROMUX-SEMS-16	AC
ENVIROMUX-SEMS-16DP	Dual AC
ENVIROMUX-SEMS-16-24V	24VDC
ENVIROMUX-SEMS-16-24VDP	Dual 24VDC
ENVIROMUX-SEMS-16-48V	48VDC
ENVIROMUX-SEMS-16-48VDP	Dual 48VDC

Network Operation

- SNMP support; allows integration into network management platforms.
- Update system firmware.

RS232 Control

- Display and configure network settings (IP address, subnet mask, default gateway, DNS, SMTP, etc.), Enterprise settings, and time settings.
- View current values and alert statuses for sensors/digital inputs/IP devices.
- Configure SNMP
- Serial baud rate: 9,600 to 115,200bps.
- Data format: 1 start bit, 8 data bits, no parity, 1 stop bit.

Front Panel LED Indicators

- "INT ALERT" – internal sensor goes out of range of a configurable threshold.
- "EXT ALERT" – external sensor goes out of range of a configurable threshold.
- "LOW BAT" – backup battery is low.
- "CHECK LOG" – message is posted to the log.
- "PWR" – indicates device is powered.
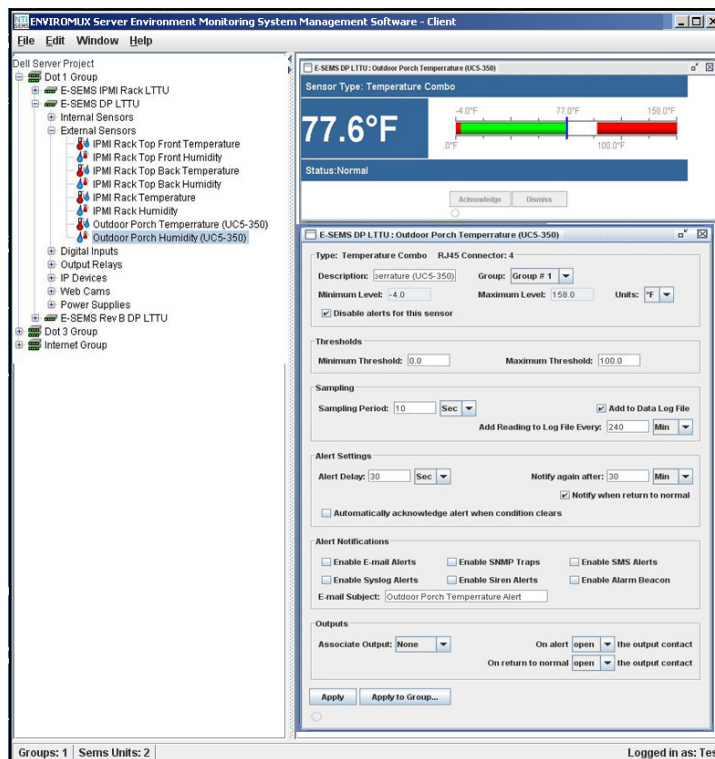
Screen Shot of the NTI ENVIROMUX-MS-SEMS
Management Software.

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ENTERPRISE SERVER ENVIRONMENT MONITORING SYSTEM

SNMP and Web monitoring/management of server room environments

Environmental Sensors

Temperature, Humidity & Combination Sensor

- Temperature Sensor (ENVIROMUX-STS)
  - Applications from 32°F to 122°F
  - (0°C to 50°C).
  - Accurate to within ±0.9°F (±0.5°C).
- Humidity Sensor (ENVIROMUX-SHS)
  - 20% to 80% relative humidity, ±5%
    - For applications from 32°F to 104°F (0°C to 40°C)
- Temperature/Humidity Sensor (ENVIROMUX-STHS)
  - Applications from 32°F to 122°F (0°C to 50°C) and 20% to 80% relative humidity.
  - Accurate to within ±0.9°F (±0.5°C) and ±5% relative humidity.

ENVIROMUX-STS
ENVIROMUX-SHS
ENVIROMUX-STHS
ENVIROMUX-STHS-99

- Temperature/Wide Range Humidity Sensor (ENVIROMUX-STHS-99)
  - Applications from 32°F to 122°F (0°C to 50°C)
  - Accurate to within ±2°F (±1°C)
    - 20% to 80% relative humidity, ±3%
    - 10% to 90% relative humidity, ±4%
    - 0% to 99% relative humidity, ±5%
- RJ45 connector.
- Supports CAT5/5e/6 cable up to 1,000 ft. (not included).
- Regulatory approvals: CE, RoHS

Air Velocity Sensor

ENVIROMUX-AV w/Converter ENVIROMUX-S5VDC

- Reliable sensor for measurement of air velocity.
- Requires the ENVIROMUX-S5VDC sensor converter to operate.
- Flow range: 0-10m/s
- Accuracy: ±5% of measuring value at 68°F (20°C).
- Dust resistant design.
- Regulatory approvals: CE, RoHS.

5VDC Sensor Converter

ENVIROMUX-S5VDC

- External RJ45 device monitors up to two linear DC sensors, 0VDC ~ 5VDC
- Accuracy: ±1%
- Resolution: 1.22mV
- Input impedance: 20K ohms
- Provides 12VDC, 25mA for each sensor
- Connector: screw terminal, 8-position.
- Supports CAT5/5e/6 cable up to 1,000 ft. (not included)
- Regulatory approvals: CE, RoHS.

Liquid Detection Sensor

ENVIROMUX-LDSx-y

- For warning of flooding.
- Detects liquid depth >0.1".
- Minimum puddle: 0.6" diameter.
- 100% waterproof electronics.
- Detects any liquid, except deionized water.
- RJ45 connector.
- Supports CAT5/5e/6 cable up to 1,000 ft. (not included).
- Available water sensor cable (x) lengths: 1/10/50/100/200/400/600/ 800/1,000 feet.
- Available 2-wire cable (y) lengths: 5/10/20/50/100 feet.
- Regulatory approvals: CE, RoHS

Smoke Detection Sensor

ENVIROMUX-SDS

- For warning of smoke.
- Built-in 135°F (57°C) thermal heat sensor.
- Connect to RJ45 or digital input sensor ports.
- Photoelectric smoke detector.
- Screw terminal
- Maximum cable length: 1,000 ft
- Regulatory approvals: UL

Air Flow Sensor

ENVIROMUX-AFM-xx

- Reliable mechanical solution for monitoring air flow.
- Reacts to any condition causing insufficient flow of air such as malfunctioning cooling fan, increased friction, or physical blockage.
- Can be used for direct monitoring of a cooling fan.
- Switch contact is closed when air flow is >8.2 ft/s.
- Connection: 2x single strand AWG26
- Available Lengths: 1.5/10/50/100/200/400/600/800/1000 feet
- Regulatory approvals: CE, RoHS

Carbon Monoxide Detector

ENVIROMUX-CMD

- Continuous air monitoring.
- Pre-set alarm points alert at:
  - 70 ppm after 60 to 240 minutes
  - 150 ppm after 10 to 50 minutes
  - 400 ppm after 4 to 15 minutes
- Flush or surface mount.
- Test functionality of electrochemical CO sensing cell.
- Connect to RJ45 or digital input sensor ports.
- Screw terminal
- LED indicators for operation status and system test.
- Regulatory approvals: UL

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ENTERPRISE SERVER ENVIRONMENT MONITORING SYSTEM

SNMP and Web monitoring/management of server room environments

Motion/Intrusion/Vibration Sensors

Door Contact Sensor
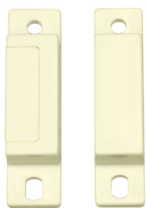
- Monitors access with a magnetic bridge sensor, which responds to any magnetic material (no special inserts necessary).
- For normally closed circuit connection.
- 2-wire interface, screw terminal
- Maximum cable length: 1,000 ft.
- Wide actuating gap, approximately 1".
- Regulatory approvals: RoHS

ENVIROMUX-M-DCS

Glass Break Detection Sensor

- Acoustically detects the cracking of glass.
- Adjustable sensitivity.
- Connect to RJ45 or digital input sensor ports.
- Screw terminal
- Maximum cable length: 1,000 ft.

ENVIROMUX-GBS

Access Control Digital Keypad

- Two relay outputs controlled by two groups of independent user codes.
- Normally closed and normally open dry contacts for both output relays.
- Terminal block for external connections.
- Single lock or inter-lock operation.
- Operate with fail-safe or fail-secure locking device.
- Non-volatile memory
- Duress output.
- Regulatory approvals: CE, RoHS

ENVIROMUX-ACK

Electric Strike

- Fail-Safe Electric Strike (ENVIROMUX-EDR-SF)
  - The door is locked with power ON, and unlocked with power OFF.
  - For Fire/Emergency door or Escape door installations.
- Fail-Secure Electric Strike (ENVIROMUX-EDR-SCR)
  - The door is locked with power OFF, and unlocked with power ON.
  - For Entrance door installation.
- Regulatory approvals: CE

ENVIROMUX-EDR-SCR
ENVIROMUX-EDR-SF

Emergency / Panic Button

- Sends activation signal when button is pressed.
- For normally closed or normally open circuit connections.
- 2-wire interface; screw terminal.
- Maximum cable length: 1,000 ft.
- Regulatory approvals: RoHS

ENVIROMUX-EBS

Vibration Sensor

- For registering movement / shocks.
- Adjustable sensitivity.
- Connect to RJ45 or digital input sensor ports.
- Screw terminal
- Maximum cable length: 1,000 ft.
- Regulatory approvals: RoHS

ENVIROMUX-VSS

Infrared Motion Detector

- Registers movement in the area covered.
- Condition display via LED.
- 24 dual-element detection zones for long, mid and short range protections.
- Pulse count or single shot triggering.
- Good RFI protection.
- Screw terminal
- Maximum cable length: 1,000 ft.

ENVIROMUX-IMD

- Provides immunity from common-mode signals such as the effect of strong hot or cold air currents, variation in ambient temperature, background radiation and acoustic noise.
- Regulatory approvals: CE, RoHS

Infrared Motion Detector, Ceiling Mount

- Detects movement across the detection field.
- 360° detection pattern.
- 113° conical detection angle from ceiling.
- 36 ft diameter protection when mounted 12 ft high.
- Provides substantial immunity to false alarms caused by environmental disturbances.
- Pulse count or single shot triggering.
- Good RFI protection
- Screw terminal
- Maximum cable length: 1,000 ft.
- Regulatory approvals: CE, RoHS

ENVIROMUX-IMD-CM

Light Intensity Sensor

- Detects and measures the luminous intensity of light.
- Ideal for monitoring unmanned closets, telecom rooms, remote data rooms, or other low traffic facilities.
- Applications from 0 to 128,000 lux.
- Human eye response (540nm peak sensitivity).
- IR and UV rejection
- RJ45 connector.

ENVIROMUX-LIS

- Supports CAT5/5e/6 cable up to 1,000 ft. (not included).
- Regulatory approvals: CE, RoHS

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ENTERPRISE SERVER ENVIRONMENT MONITORING SYSTEM

SNMP and Web monitoring/management of server room environments

Alert/Communications Accessories

Alarm Beacon

- Emits flashing red light when activated.
- Flash Rate: 90 per minute.
- Screw terminal; 2-wire interface.
- Maximum cable length: 100 ft.
- Regulatory approvals: RoHS

ENVIROMUX-BCN-R

Siren

- Emits ear-piercing sound to deter intruders
- Output Level: 108 dB
- Screw terminal; 2-wire interface.
- Maximum cable length: 100 ft.
- Regulatory approvals: RoHS

ENVIROMUX-SRN-M

Automatic Voice/Pager Dialer System

- ENVIROMUX-AVDS
  - Program up to 4 separate input channels.
  - Calls up to 8 telephones, pagers, or cell phones when a sensor goes out of range of a configurable threshold.
  - Stores up to 4 outgoing voice messages. Create a message for 4 different types of alarms.
  - Listen in on the area being monitored during outgoing message communication, or initiate a two-way conversation to detail the emergency condition.

ENVIROMUX-AVDS
ENVIROMUX-AVDS-LC

- ENVIROMUX-AVDS-LC
  - Program one input channel.
  - Calls up to 4 telephones, pagers, or cell phones when a sensor goes out of range of a configurable threshold.
- Regulatory approvals: FCC

GSM Modem

- Sends SMS text messages to a pager or cell phone when a sensor goes out of range of a configurable threshold.
- Built-in antnna.
- Convenient push-push SIM card holder
  - Mini SIM card supporting SMS messaging required (not included)
- Protocols: AT commands

ENVIROMUX-GSM

- Supports one configurable phone number for sending SMS text messages.
- Quad band: 850/900/1800/1900 MHz
- SMS: Text mode

3G Serial Modem

- Sends SMS text messages to a cell phone when a sensor goes out of range of a configurable threshold.
- Supports third generation (3G) digital cellular standards.
- Removable antenna.
- Convenient push button SIM card holder.
  - Mini SIM card supporting 3G SMS messaging required (not included).

ENVIROMUX-3G

- Protocols: AT commands
- Supports one configurable phone number for sending SMS text messages.
- Tri-band UMTS (HSDPA): 850/1900/2100 MHz
- Quad band EDGE/GPRS/GSM: 850/900/1800/1900 MHz

Sensor Accessories

4-20mA Sensor Converter

- External RJ45 device monitors up to two 4-20mA analog sensors.
- Supports ISA Type 2, ISA Type 3, and ISA Type 4 sensors.
- Resolution: 100mA
- Accuracy: 0.5% of full scale
- Provides 18VDC, 25mA for each sensor.
- Connector: screw terminal, 8-position.
- Powered by ENVIROMUX-SEMS-16.

ENVIROMUX-S420MA

- Supports CAT5/5e/6 cable up to 1,000 ft. (not included)
- Regulatory approvals: CE, RoHS.

Sensor Cables

- 2-wire sensor cable.
- Use to connect dry contact sensors to the ENVIROMUX-SEMS-16.
- Available lengths (ft): 3/6/10/25/50/100
- Regulatory approvals: RoHS, UL

ENVIROMUX-2W-xx

ENVIROMUX®

Power Relays & Sensors

AC Power Monitor with Relay

- Reports AC voltage, frequency, power, and current.
  - Monitors power from one AC inlet to one AC outlet between 50~250VAC and 47~63Hz.
  - Monitors the number of swells, sags, and spikes.
- Includes relay with configurable disconnect settings: threshold reboot or manual reboot.
- Outlet Max load rating:
  - ENVIROMUX-ACLM-P12 (US/Canada): 12A rated load, 15A maximum.
  - ENVIROMUX-ACLM-P8 (Euro/UK): 8A rated load, 10A maximum.

ENVIROMUX-ACLM-P12
ENVIROMUX-ACLM-P8

- Capable of measuring current surges to 20A.
- User defined minimum and maximum voltage and power thresholds.
- Capable of detecting user selected spike events with a peak greater than 50V, 250V, 500V, or 1KV.
- Supports CAT5/5e/6 cable up to 1,000 ft. (not included).
- Regulatory approvals: RoHS

3-Phase Power Transducer

ENVIROMUX-PT1M-208-0800
ENVIROMUX-PT3M-208-0800
ENVIROMUX-PT3S-480-0100

- Monitors and reports kW real power of any 3 phase circuit, such as the power a building consumes.
- Split-core design allows installation of CT without disconnecting conductor.
- Color coded CT and voltage leads.
- Smart electronics in sensors automatically detect phase reversal.
- Input primary voltage: 208/240 or 480 VAC RMS
- Number of phases monitored: one or three
  - Balanced loads: one CT model (assumes single reading represents all phase currents)
  - Unbalanced loads: three CT model (one black, red, and yellow).
- Frequency: 50/60Hz
- Maximum primary current: Up to 2400 amps continuous per phase
- Accuracy: ± 1%
- Output: 4-20mA
- Supply power (current loop): 9-30VDC; 30mA max.
- Requires the ENVIROMUX-S420MA to operate.
- Caution: sensors tie directly into the line; should be used only by qualified personnel.

AC Voltage Detector

ENVIROMUX-ACVD-515
ENVIROMUX-ACVD-C14

- Measurement range: detects voltage from 50 to 250 VAC.
- Measurement indication: Alarm or Normal.
- Sensor type: open/closed contact switch.
- Attached 3-foot power cord.
  - ENVIROMUX-ACVD-515: Standard US 120V 15A NEMA 5-15 plug
  - ENVIROMUX-ACVD-C14: Universal 250V IEC C14 socket
- Regulatory approvals: CE, RoHS

AC Dual Voltage Monitor

- Reports AC voltage and frequency.
  - Monitors AC voltage and frequency on two AC inlets between 50~250VAC and 47~63Hz.
  - Monitors the number of swells, sags, and spikes.
- User defined minimum and maximum voltage thresholds.
- Capable of detecting user selected spike events with a peak greater than 50V, 250V, 500V, or 1KV.
- Supports CAT5/5e/6 cable up to 1,000 ft. (not included).
- Regulatory approvals: RoHS

ENVIROMUX-ACLM-V

DC Voltage Monitor

- Monitors up to two DC voltages: -60VDC ~ 0VDC or 0VDC ~ 60VDC
- Connector: screw terminal, 5-position
- Supports CAT5/5e/6 cable up to 1,000 ft. (not included)
- Regulatory approvals: RoHS

ENVIROMUX-S60VDC

Remote Controlled Power Relay

- Use with ENVIROMUX-SEMS-16 to remotely turn off the power of an AC powered device.
  - Remotely reboot non-responsive computer systems.
- Two AC power receptacles.
- Load capacity:
  - ENVIROMUX-PWR-RLY-15A: 15A at 120VAC.
  - ENVIROMUX-PWR-RLY-20A: 20A at 120VAC.
- Regulatory approvals: TÜV

ENVIROMUX-PWR-RLY-15A
ENVIROMUX-PWR-RLY-20A

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MINI SERVER ENVIRONMENT MONITORING SYSTEM

SNMP and Web monitoring/management of server room environments
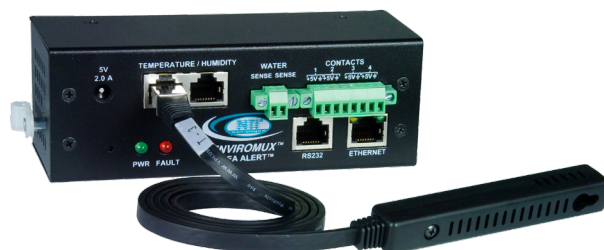
Monitors Threats:

- **Temperature**
- **Humidity**
- **Water Leakage**
- **Intrusion**

ENVIROMUX-MINI with ENVIROMUX-T-3 Temperature Sensor

Features & Applications

The ENVIROMUX® Mini Server Environment Monitoring System monitors critical environmental conditions (such as temperature, humidity, and water leakage) that could destroy network components in your server room. When a sensor goes out of range of a configurable threshold, the system will notify you via email, SNMP traps, web-page alerts, a visual indicator (red LED), syslog, and SMS messages (via external GSM or 3G modem).

- Monitor and manage server room environmental conditions over IP.
- Sensors supported:
  - Two temperature/humidity sensors.
  - One liquid detection sensor.
  - Four digital inputs sensitive to contact closure.
- Alerts are posted in message log, which is accessible through Web user interface.
  - The log can be downloaded as a tab-delimited plain text file and/or sent to an external syslog server.
- Integrates with various Open Source monitoring packages – Nagios and MRTG.
  - For NTI SNMP plugin for Nagios, refer to www.networktechinc.com/nagios-plugin.html
- High quality, rugged steel construction with durable powder coat finish.

- Flexible Zero-RU mounting.
  - Mounting tabs included.
  - Available with optional DIN rail mounting for industrial applications.
- Optional industrial mini server environment monitoring system for high temperature environments. This industrial system has the ability to operate and monitor in harsh environments at high temperatures up to 167°F (75°C).
  - Add "-IND" to the end of the part number to specify this option.
- Use in data centers, co-lo sites, web hosting facilities, telecom switching sites, POP sites, server closets, or any unmanned area that needs to be monitored.

Specifications

Temperature/Humidity Inputs

- Two female RJ45 connectors for connecting temperature sensors, humidity sensors and/or combined temperature/humidity sensors.

Water Detection Cable Input

- One screw terminal pair for connecting liquid detection sensor.
  - Additional water detection sensors can be connected to the dry contact closures.
- Output voltage: +5VDC.
- Current limited to 10mA
- Maximum resistance to close contact: 300K Ohm.

Dry Contact Closures

- Four screw terminal pairs for connecting dry contact devices.
- Potential-free.
- Output voltage: +5VDC
- Current limited to 10mA
- Maximum resistance to close contact: 300K Ohm

RS232 Port

- RS232 DCE port.
- One female RJ45 connector for controlling a GSM modem and/or flash upgrades (includes DB9F-RJ45F adapter).
- Supports 3-wire interface (Tx, Rx and GND).
- Used for flash upgrades (includes DB9F-RJ45F adapter).
- GSM modem supported: Teltonika WirelessCom/G10
- 3G modem supported: NetComm N3GS003

Ethernet Port

- One female RJ45 connector with LEDs.
- 10 BaseT Ethernet interface.

Protocols

- HTTP, SNMP V1, SMTP, TCP/IP, UDP, DHCP, syslog
- Compatible with any SNMP management software.
- Operates and configures via HTTP web page.
- An IP address can be assigned to the ENVIROMUX-MINI automatically by a DHCP server.
- Generates SNMP traps, email alerts, and syslog messages.
- Email alerts can be sent to three addresses.
- Up to four users can access the Web interface simultaneously.

Dimensions

- WxDxH (in.): 5.6x2x2

Regulatory Approvals

- CE, UL, cUL, RoHS

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 5W
- Power the ENVIROMUX-MINI over Ethernet using ENVIROMUX-POE adapter.

MTBF

- 80,327 hrs.

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www.networktechinc.com

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MINI SERVER ENVIRONMENT MONITORING SYSTEM

SNMP and Web monitoring/management of server room environments

Control Methods

■ Configuration can be done over the Internet/LAN via Web page.

Front Panel Interface

■ LEDs indicate the following:
  • "Fault" (red) lights up if a sensor goes out of range of a configurable threshold.
  • "Power" (green) lights up when the device is powered/all clear.

Web Interface

■ Configure sensors' thresholds, alarm methods, formats of alerts, and system data log.
■ View/edit sensors' current values, thresholds and alert statuses.
  • All sensors connected to the ENVIROMUX-MINI can be viewed on one summary page.
  • User configurable settings allow sensors to return to normal status when alert condition clears, without manually acknowledging/dismissing the alert.
■ View/edit entries stored in the system data log.
  • The log can be downloaded as a tab-delimited plain text file and/or sent to an external syslog server.
■ Configure IP information (address, subnet mask, default gateway, DNS, etc.), user administrative settings, and data logging settings.
■ Up to four users can access the web page at one time.

WAP Mobile Summary Page

■ View summary page on WAP 2.0 compatible devices (smartphones, PDAs, cell phones, etc.)
  • Supports Blackberry Software 4.2 and higher.
■ Summary page lists all connected sensors' current values and alert statuses.

Configuration and Cable Illustration
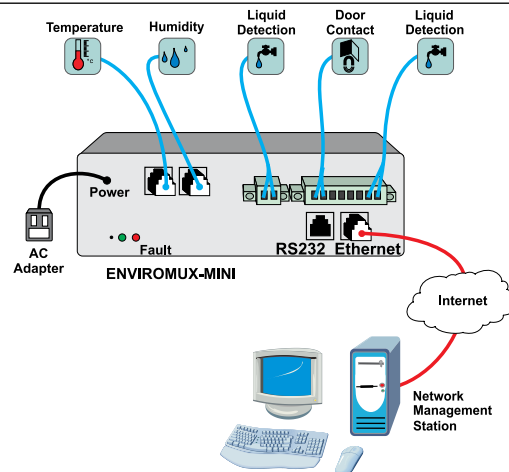
Sensors & Accessories

Temperature Humidity & Combination Sensor

ENVIROMUX-T-xx
ENVIROMUX-RH-xx
ENVIROMUX-TRH-xx

■ Temperature Sensor (ENVIROMUX-T-x)
  • Applications from 32°F to 104°F (0°C to 40°C).
  • Accurate to within ±1.35°F (±0.75°C).
■ Humidity Sensor (ENVIROMUX-RH-x)
  • 20% to 80% relative humidity, ±5%
  • For applications from 32°F to 104°F (0°C to 40°C)
■ Temperature/Humidity Sensor (ENVIROMUX-TRH-x)
  • Applications from 32°F to 104°F (0°C to 40°C) and 20% to 80% relative humidity.
  • Accurate to within ±1.35°F (±0.75°C) and ±5% relative humidity.
■ High resistance to external influences on the cable due to digital output signal.
■ Re-calibration is not necessary after initial set-up.
■ Available lengths: 3/7/10/25 feet.
■ Regulatory approvals: CE, RoHS

Smoke Detection Sensor

ENVIROMUX-SDS-PA

■ For warning of smoke.
■ Built-in 135°F (57°C) thermal heat sensor.
■ Photoelectric smoke detector.
■ Screw terminal.
■ Includes 9V/1A power supply.
■ Regulatory approvals: UL

Liquid Detection Sensor

ENVIROMUX-LDx-y

■ For warning of flooding.
■ 100% waterproof electronics.
■ Detects any conductive liquid.
■ Puddle: 0.6" diameter.
■ Detects liquid depth >0.1".
■ Available water sensor cable (x) lengths: 1/10/50/100/200/400/600/800/1,000 feet.
■ Available 2-wire cable (y) lengths: 5/10/20/50/100 feet.
■ Regulatory approvals: CE, RoHS

Door Contact Sensor

ENVIROMUX-M-DCS

■ Monitors access with a magnetic bridge sensor, which responds to any magnetic material (no special inserts necessary).
■ For normally closed circuit connection.
■ 2-wire interface; screw terminal
■ Wide actuating gap, about 1".
■ Regulatory approvals: RoHS

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MINI SERVER ENVIRONMENT MONITORING SYSTEM

SNMP & Web monitoring/management of server room environments

Motion/Intrusion/Vibration Sensors Sensors

AC Voltage Detector

ENVIROMUX-ACVD-515
ENVIROMUX-ACVD-C14

- Measurement range: detects voltage from 50 to 250 VAC.
- Measurement indication: Alarm or Normal.
- Sensor type: open/closed contact switch.
- Attached 3-foot power cord.
  - ENVIROMUX-ACVD-515: Standard US 120V 15A NEMA 5-15 plug
  - ENVIROMUX-ACVD-C14: Universal 250V IEC C14 socket
- Regulatory approvals: CE, RoHS

DC Voltage Detector

ENVIROMUX-DCVD-24V-M

- Measurement range: detects voltage from 24-36 VDC.
  - Contacts remain closed between 26-36 VDC
  - Contacts open when monitored voltage drops below 24 VDC
- Measurement indication: Alarm or Normal.
- Sensor type: open/closed contact switch.
- Includes 6-foot 2-wire cable to connect to the ENVIROMUX-MINI.
- Attached 3-foot power cord with tinned leads on 3 wires.
- Regulatory approvals: CE, RoHS

Temperature Sensor, Extended Range

ENVIROMUX-T-IND-xx

- For use with ENVIROMUX-MINI-IND.
- Applications from 32°F to 167°F (0°C and 75°C).
- Accurate to within ±1.25°C (±2.25°F).
- Available lengths: 3/7/10/15 ft
- Regulatory approvals: CE, RoHS

Air Flow Sensor

ENVIROMUX-AFM

- Reliable mechanical solution for monitoring air flow.
- Reacts to any condition causing insufficient flow of air such as malfunctioning cooling fan, increased friction, or physical blockage.
- Switch contact is closed when air flow is >8.2 ft/s.
- Connection: 2x single strand AWG26
- Available lengths: 1.5/10/50/100/200/400/600/800/1,000 ft.
- Regulatory approvals: RoHS

Sensor Cables

ENVIROMUX-2W-xx

- 2-wire sensor cable.
- Use to connect dry contact sensors to the ENVIROMUX-MINI.
- Available lengths (ft): 3/6/10/25/50/100
- Regulatory approvals: RoHS, UL

GSM Modem

ENVIROMUX-GSM

- Sends SMS text messages to a pager or cell phone when a sensor goes out of range of a configurable threshold.
- Built-in antenna.
- Convenient push-push SIM card holder
  - Mini SIM card supporting SMS messaging required (not included)
- Protocols: AT commands
- Supports one configurable phone number for sending SMS text messages.
- Quad band: 850/900/1800/1900 MHz
- SMS: Text mode
- Power: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Regulatory Approvals: CE

3G Serial Modem

ENVIROMUX-3G

- Sends SMS text messages to a cell phone when a sensor goes out of range of a configurable threshold.
- Supports third generation (3G) digital cellular standards.
- Removable antenna.
- Convenient push button SIM card holder.
  - Mini SIM card supporting 3G SMS messaging required (not included).
- Protocols: AT commands
- Supports one configurable phone number for sending SMS text messages.
- Tri-band UMTS (HSDPA): 850/1900/2100 MHz
- Quad band EDGE/GPRS/GSM: 850/900/1800/1900 MHz
- Includes 12V/1A power supply.

Power Over Ethernet Adapter

ENVIROMUX-POE

- Enables ENVIROMUX-MINI to be powered over Ethernet connection.
- Supply power and data up to 300 feet using standard Ethernet cabling.
- Outputs power on an attached DC power cable and data on an attached Ethernet cable.
- Ethernet Pin Usage:
  - Data: 1,2,3,6
  - Power: 4,5,7,8
- Overload and short circuit protection.
- Standards: 802.3af
- Maximum power output: 5VDC @ 2.4A.
- Regulatory approvals: RoHS, FCC, CE

ENVIROMUX®

www.networktechinc.com/enviro-mini.html

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SECURE REMOTE POWER CONTROL UNIT

Securely control power on/off/reboot to up to eight devices over IP

NEW

• **Power on/off/reboot**
• **Linux Inside**

IPDU-S2 (Front and Back)

Features & Applications

The ENVIROMUX® Secure Remote Power Control Unit allows you to remotely reboot and control power (on/off) to up to eight servers or other powered devices from any location via secure web interface, RS232, SSH, or Telnet.

- Supports power on or off in addition to reboot.
- Three operating modes for power reboot:
  - Manual reboot — select the outlet and turn the power on or off.
  - Scheduled reboot — set a date, time, and duration of the power cycle. Power cycles can also be scheduled as recurring daily, weekly, or monthly.
  - Associated reboot — power on or off a device when a sensor goes out of range of a user-defined threshold, or reboot if an IP device is unresponsive.
- Security: HTTPS, SSHv2, SSLv3, IP Filtering, LDAPv3, AES 256-bit encryption, 16-character username/password authentication, user account restricted access rights.
- Power-up sequencing limits in-rush current.
- Outlets can be individually named (up to 80 characters).
- Operates on a hardened Linux system.
- Firmware upgradeable "in-field" through console port or Ethernet.

- Monitor (ping) up to eight IP network devices.
  - Configure the timeout and number of retries to classify a device as unresponsive.
  - Power cycle associated power outlets if devices are not responding.
  - Alerts are sent if devices are not responding.
- Monitor environmental conditions.
  - Supports two sensors, including: temperature, humidity, and water detection.
  - When a sensor goes out of range of a configurable threshold, the system will notify you via email, syslog, LEDs, web page, and network management (SNMP).
  - Powers up or down devices when sensors go out of range of user-defined thresholds.
- High quality, industrial construction – operate in harsh environments at low/high temperatures from -4°F to 140°F (-20°C to 60°C).

Specifications

Power

- 90 to 250 VAC at 50 to 60 Hz.
- Input Connector:
  - 2-Port: IEC C14 inlet.
  - 4/8 Port: IEC C20 inlet.
- Output Connectors: IEC C13 outlets.
- Includes line cord and output cord.

Current Rating		
NTI Part #	In	Out
IPDU-S2	15	10
IPDU-S4/8	20	15

RJ45 Sensor Ports

- Two RJ45 modular jacks for connecting NTI temperature, humidity, temperature/humidity, and liquid detection sensors.

Network Interface

- One 10/100 Base-T Ethernet port with RJ45 Ethernet connector.

Console Port

- One female RJ45 port for terminal access.

Protocols

- HTTPS, SSHv2, SSLv3, LDAPv3, AES 256-bit encryption, SNMPv2c, Syslog.
- Operates and configures via HTTP/HTTPS web page, Telnet, SSH, or RS232 interface.
- Alerts are sent using email, syslog, and/or SNMP traps when devices are not responding and when a sensor goes out of range of a configurable threshold.
  - Alerts are posted in event log, which is accessible through Web user interface. The log can be downloaded as a tab-delimited plain text file.
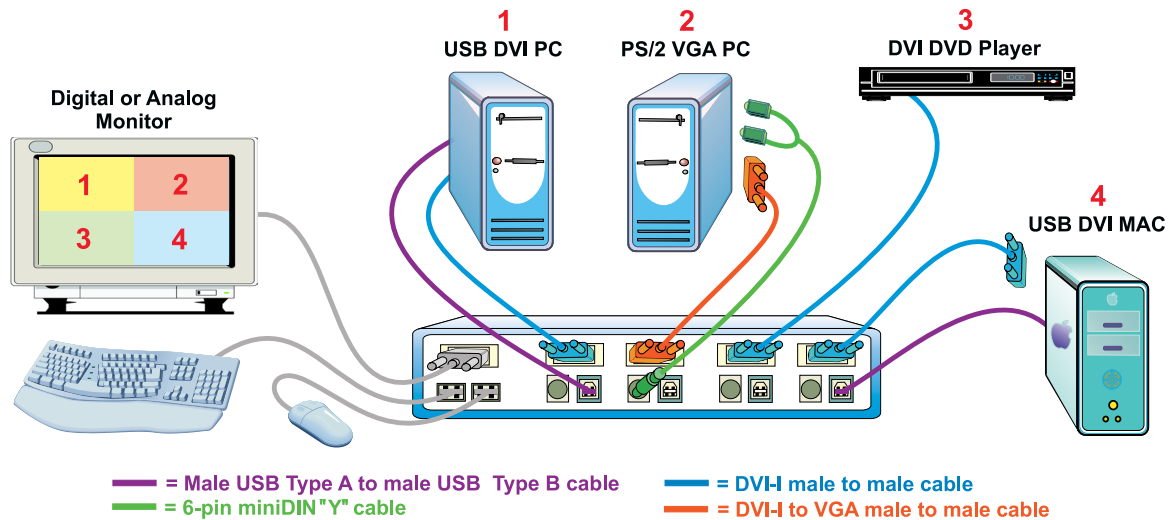
Environmental

- Operating temperature: -4°F to 140°F (-20°C to 60°C).
- Storage temperature: -13°F to 149°F (-25°C to 65°C).
- Operating and Storage Relative Humidity: 0 to 90% non-condensing RH.

Regulatory Approvals

- CE, RoHS

SECURE REMOTE POWER CONTROL UNIT

Securely control power on/off/reboot to up to eight devices over IP

Control Methods

RS232/Telnet/SSH

- Configure, control and monitor over the text-based menu system accessible via RS232, Telnet, and SSH.
- Access is controlled via username/password.
  - System stores encrypted login information.
- Two user levers: User and Administrator.

Web Interface

- Configure, control and monitor via HTTP/HTTPS webpage.
- Configure outlet operation settings, sensor thresholds and timing, alarm methods, alert formats, sensor/IP device outlet association, and system data log.
- View power outlet status, sensor values, IP device values, and alert status.
  - All connected power outlets, devices, and sensors can be viewed on one summary page.
  - View, Edit, Turn On/Off, Cycle buttons for each power outlet.
  - View and Edit sensors and IP devices.
- View entries stored in the system logs.
  - Event log records system events such as alerts, user login/logout, failed email messages, etc.
  - Data log records samples of sensor readings. User specifies sampling time period.
  - The log can be downloaded as a tab-delimited plain text file and/or sent to an external syslog server.
- Configure IP information (address, subnet mask, default gateway, DNS, etc.), SMTP settings, SNMP settings, IP filtering, and user administrative settings.
  - Administrator can restrict or grant access from certain IP addresses based on configured filter rules.
- Administrate up to 15 users plus a root administrator.
- Permissions, schedule and alert methods are configurable for each user.

Security

- Local DB or LDAP authentication
- TLS/SSL secure communications
- SSH v2
- AES, 3DES/DES, Blowfish, RSA, EDH-RSA, Arcfour Encryptions

Configuration and Cable Illustration
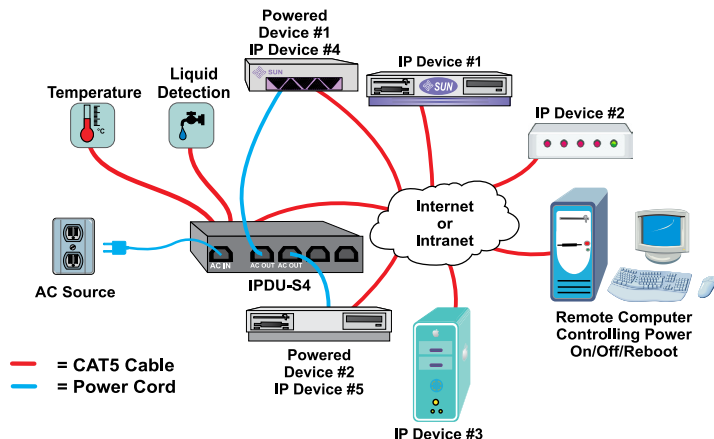
Front Panel LED Indicators

- "POWER" (green) — indicates device is powered.
- "OUTLET" (green / red) — outlet is on or off.
- "SENSOR FAULT" (red) — lights up if a sensor goes out of range of a configurable threshold.
- "IP FAULT" (red) — lights up if an IP device is unresponsive.

Network Operation

- SNMP support, allowing integration into network management platforms.
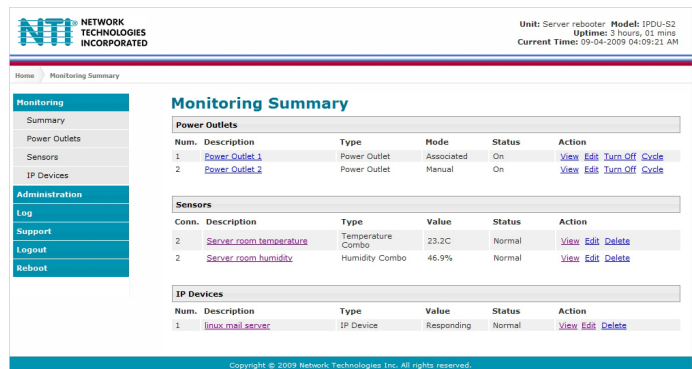
Web Interface Screen Shot
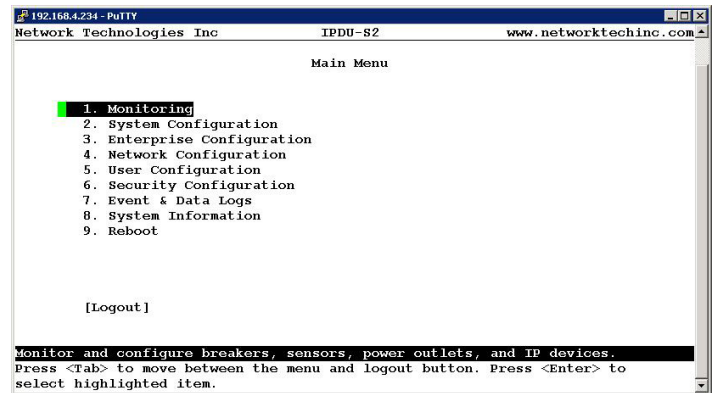
Text-Based Menu Interface Screen Shot

Secure Remote Power Control Unit Models

NTI Part #	# of Outputs	Desktop Size WxDxH (in)	Rack Size WxDxH (in)
IPDU-S2	2	6.1x5.6x1.7	NA
IPDU-S4	4	7x6x3.5	NA
IPDU-S4R	4	13.5x6x1.75 (without supplied rackmount kit)	19x6x1.75 (with supplied rackmount kit
IPDU-S8	8	17.4x6x1.75 (without supplied rackmount kit)	19x6x1.75 (with supplied rackmount kit)

DVI/VGA QUAD SCREEN MULTIVIEWER

Display video from four computers simultaneously on a single LCD/plasma monitor

SPLITMUX-DVI-4 (Front & Back)

Features & Applications

The SPLITMUX® DVI/VGA Quad Screen Multiviewer allows you to simultaneously display video from four different computers on a single monitor. Additionally, the SPLITMUX can switch one of the four attached computers to a shared keyboard and mouse for operation.

- Quad, Picture in Picture, Full Screen, Dual, and Fade Through Black display modes.
- Independent video in to video out resolution.
- Supports up to 1600x1200 VGA video resolution and 1900x1200 DVI video resolution.
- Accepts analog and digital video signals simultaneously.
- Connect analog and digital devices to the splitter, and display images on a digital or analog monitor.
- Supports digital DVI and analog VGA.
- Equipped with On Screen Display (OSD).
- Cascade SPLITMUX Quad Screen Splitters to display video from up to 16 video sources on one screen.
- Screen protection feature hides "no signal" notifications after 10 seconds to prevent image burn-in.
- Touch Screen support — operate connected computers via USB touch screen monitor.

- Front-panel push buttons and hotkeys for channel selection.
- LED indicators on switch show which port is active.
- Compliant with USB 2.0 (high-speed and low/full speed) standards.
- Supports USB or legacy PS/2 computers.
- Supports digital DVI devices, such as DVD players, satellite receivers and HDTV tuners.
- Boot PCs, SUNs and MACs simultaneously.
- USB SUN start-up keys are supported.
- Supports MAC soft (keyboard) power-on.
- Connect BNC/RCA composite video devices, such as a security camera, using NTI's BNCSV-VGA-CNVTR BNC to VGA converter
- Supports KVM over IP extenders to control the Quad Screen Splitter remotely in quad mode or PiP mode.

Specifications

Hosts

- Female DVI-I connectors.
- Female USB Type B connectors.
- Female 6-pin miniDIN connectors.
- Supports USB and PS/2 computers.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- Supports digital DVI devices, such as DVD players, satellite receivers and HDTV tuners.
- Any VGA computer can be connected by using a DVI-I to VGA cable (included).

Monitor

- Supports crisp and clear VGA video resolution up to 1600x1200 and DVI video resolution up to 1900x1200.
- Female DVI-I connector.
- A VGA monitor can be connected by using a DVI-I to VGA cable (included).
- Support for touch screens with the elo AccuTouch 2116 Controller or the TSharc Octopus Controller.

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.
- Power consumption: 40W

Devices

- Female USB Type A connectors.
- Provides support for high-speed (480 Mbps), full-speed (12 Mbps) or low-speed (1.5 Mbps) USB devices.
- Compatible with most USB keyboards and mice.
- Keyboard and mouse are hot-pluggable.
- Supports keyboard layouts in multiple languages: English, German, French, Italian, and Spanish.
- Connect legacy PS/2 devices by using a USB to PS/2 converter (included).

Dimensions

- WxDxH (in): 17.3x9.5x1.75
- Rackmount kit included.

MTBF

- 320,000 hrs.
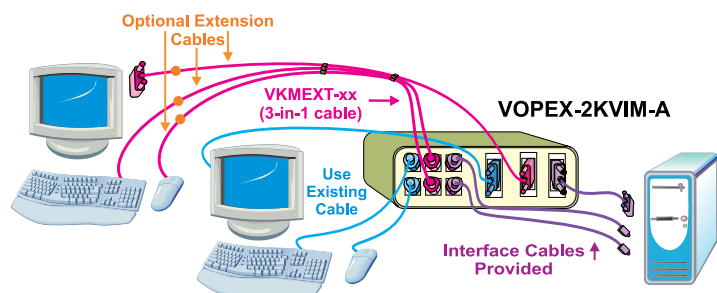
Environmental

- Operating temperature: 41°F to 113°F (5°C to 45°C)
- Storage temperature: 14°F to 140°F (-10°C to 60°C)
- Operating and Storage Relative Humidity: 5 to 85% non-condensing RH.

Regulatory Approvals

- CE, FCC, RoHS

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Display video from four computers simultaneously on a single LCD/plasma monitor

1 USB DVI PC

2 PS/2 VGA PC

3 DVI DVD Player

4 USB DVI MAC

Digital or Analog Monitor

1	2
3	4

—— = Male USB Type A to male USB Type B cable
—— = 6-pin miniDIN "Y" cable
—— = DVI-I male to male cable
—— = DVI-I to VGA male to male cable

Display Modes

Quad Mode

■ In quad mode, the screen is split into four fields of equal size each displaying the entire contents of four different video sources.

Full Screen Mode

■ In full screen mode, one of the four video sources is displayed in full screen size and maximum resolution.

Picture in Picture (PIP) Mode

■ In PIP mode, the full screen display of one of the four video sources is accompanied by one or three small images (thumbnails) of the three other video sources on the right hand margin of the screen allowing simultaneous monitoring.

■ Size, position and selection of the thumbnails are customizable.

Dual Mode

■ In dual mode, the left halves of the full screen images from two video sources are displayed side by side at full size.

Fade Through Black

■ When switching channels or display modes, the previous image fades out to black, and the next image fades in from black.

■ Customizable with five speed settings, and can be enabled or disabled by the user.

Built-In Control

Front Panel Interface

■ Use front panel buttons to locally change ports or to select a display mode.

■ LEDs indicate currently selected port and display mode.

Keyboard/Mouse

■ Use hotkey commands or hotmouse commands to select display mode and to select ports.

On Screen Display

■ Select display modes and computers with On Screen Display (OSD).

■ Use the front panel buttons or your keyboard to operate the OSD.

■ OSD controls for hotkeys, OSD position, quad mode, PIP mode, brightness, contrast, phase, Horz- and Vert-center alignment adjustment.

RS232

■ Control the unit with XML-based protocol via RS232 port.

Cables

■ Four 6.5-foot 6-pin miniDIN Y-cables included.

■ Four 6.5-foot USB male Type A to male Type B cables included.

■ Two 6.5-foot DVI-I male to male cables included.

■ Two 6.5-foot DVI-I to VGA male to male cables included.

■ USB to PS/2 converter included.

■ Serial update cable and adapter included.

BNC + S-Video to VGA Converter

■ Use to connect BNC/RCA composite video devices, such as security cameras, to the SPLITMUX-DVI-4

■ Output Resolution: 800×600@60Hz, 800×600@75Hz, 1024×768@60Hz

■ Video Inputs: one female BNC, one female S-Video, and one female VGA
   • Includes a male BNC to female RCA adapter for connecting RCA composite video devices.

■ Video Output: one female VGA

■ Supports NTSC/PAL

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DVI TO VGA / VGA TO DVI CONVERTER

Convert digital DVI to analog VGA / Convert analog VGA to digital DVI

DVI-VGA

VGA-DVI (Front and Back)

Features & Applications

The DVI to VGA Converter changes your computer's digital DVI signal to analog VGA video. The converter generates all the compatible digital to analog conversion signals to make the connection between the DVI-D input and the VGA output work.

■ Connects computers with DVI-D connectors to analog VGA monitors or projectors.

■ Compatible with DDWG DVI standard.

■ Supports up to 1280x1024 video resolution.

■ No external power supply.

Specifications

Video

■ One female DVI-I dual link input connector.
  • Single link DVI-D signal.
■ One male 15-pin HD output connector.
■ Maximum resolution: 1280x1024.
■ HDCP compliant

Dimensions

■ WxDxH (in): 1.5x3x0.6 with 10" attached VGA cable.

Regulatory Approvals

■ CE, RoHS
  • Refer to website for Declaration of Conformity certificates.

Cables

■ Includes 6-foot DVI-D single link male to male cable.
■ Includes VGA female to female gender changer.

Environmental

■ Operating temperature: 32°F to 122°F (0°C to 50°C).
■ Storage temperature: -4°F to 158°F (-20°C to 70°C).
■ Operating Relative Humidity: 10 to 80% non-condensing RH.

Configuration and Cable Illustration

Features & Applications

The VGA to DVI Converter changes your computer's analog VGA signal to single link digital DVI video. The converter generates the compatible analog to digital conversion signals to make the connection between the VGA input and the DVI-D output work.

■ Connects computers with analog VGA connectors to DVI-D monitors or projectors

■ Compatible with DDWG DVI standard.

■ Supports up to 1600x1200 video resolution.

■ Supports VGA and DVI-D monitors, including LCD flat panel monitors.

Specifications

Video

■ One female 15-pin HD input connector.
■ One female 15-pin HD output connector.
■ One female DVI-I output connector.
  • Single link DVI-D signal.
■ Maximum resolution: 1600x1200

Power

■ 110 or 220 VAC at 50 or 60 Hz via AC adapter.
■ Power consumption: 5.5W

Dimensions

■ WxDxH (in): 6.4x4.1x1.1

Regulatory Approvals

■ CE, RoHS
  • Refer to website for Declaration of Conformity certificates.

Cables

■ Includes 3-foot VGA male to male cable.

Environmental

■ Operating temperature: 32°F to 122°F (0°C to 50°C).
■ Storage temperature: -4°F to 158°F (-20°C to 70°C).

Configuration and Cable Illustration
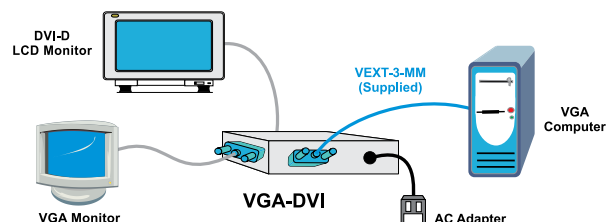
Up to four keyboards, monitors and mice can control one PS/2 computer

VOPEX-2KVIM-A (Front & Back)

Features & Applications

The VOPEX® PS/2 KVM Splitter allows up to four users to share the use of one PS/2 computer.

- Access one computer from multiple locations.
- Multiple users can enter data into the same program.
- High quality rugged steel construction with durable powder coat finish.
- Interconnect NTI switches and splitters for complex applications.
- Allows access to a PC from inside and outside of a clean room.

Specifications

Host Connection

- Male 15-pin HD connector.
- Female 6-pin miniDIN connectors.
- Compatible with legacy PS/2 computers with VGA video.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris x86, Linux, and Free BSD.

Monitor

- Female 15-pin HD connectors for VGA monitor.
- Bandwidth is 150 MHz.
- Supports 1900x1200 resolution.

Devices

- Female 6-pin miniDIN connectors.
- Keyboards and mice are hot-pluggable.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 10W

MTBF

- 2-port: 81,566 hrs
- 4-port: 79,417 hrs

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, FCC, UL, cUL, RoHS

Configuration and Cable Illustration

Optional Extension Cables

VKMEXT-xx (3-in-1 cable)

Use Existing Cable

VOPEX-2KVIM-A

Interface Cables Provided

Control Modes

- Press **Mode** button to cycle through all six modes. LEDs indicate which mode is selected.
- **User 1 Mode**–only User 1 can type or move mouse.
- **User 2 Mode**–only User 2 can type or move mouse.
- **User 3 Mode**–only User 3 can type or move mouse.
- **User 4 Mode**–only User 4 can type or move mouse.
- **Inst Mode**–All user(s) have immediate access after last keystroke or mouse movement occurs on active user.
- **Delay Mode**–Locked out user(s) must wait five seconds after last keystroke or mouse movement occurs on active user.
- In **Inst** or **Delay Mode**, typing or mouse movement activates user control.

Cables

- Three-foot interface cables are provided to connect your PS/2 keyboard, mouse and video ports.
- Use VKMEXT 3-in-1 cable to extend keyboard, monitor and mouse to 100 feet.

PS/2 KVM Splitter Models

NTI Part #	# of Ports	Size WxDxH(in)
VOPEX-2KVIM-A	2	8.5x6.0x2.6
VOPEX-4KVIM-A	4	8.5x6.0x2.6

USB KVM SPLITTER

Allows two users to control one USB computer and connect three USB devices

Features & Applications

The VOPEX® USB KVM Splitter with built-in USB hub allows two users (two USB keyboards, USB mice and VGA monitors) to access one USB computer (PC, SUN, MAC) and up to three USB devices (printers, scanners, security cameras, etc).

- Compatible with USB computers (PC, SUN, MAC).
- Built-in hub for multiple USB devices.
- Access one computer from multiple locations.
- Multiple users can enter data into the same program.
- Compliant with USB 2.0 (low/full speed) standards.
- Supports Plug-n-Play specifications.
- Supports international keyboard layouts in auto-detection mode.
- High quality, rugged steel construction with durable powder coat finish.

VOPEX-USBV-2 (Front & Back)

Specifications

Host Connection

- Male 15-pin HD connector.
- Female USB Type B connector.
- Supports a USB computer (PC, SUN, MAC).
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.

Monitor

- Female 15-pin HD connectors.
- Crisp and clear 1900x1200 resolution.
- Bandwidth is 150 MHz.

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 10W

MTBF

- 79,077 hrs.

Devices

- Female USB Type A connectors for connection of keyboard and mouse.
  - Compatible with most USB keyboards and mice, including Microsoft USB Intellimouse®, Logitech Cordless Elite Duo keyboard and mouse, Gyration keyboard/mouse and Crystal Vision keyboard with touchpad.
  - Keyboard and mouse are hot-pluggable.
- Three female USB Type A connectors for connection of USB peripheral devices (printers, scanners, security cameras, etc.)
- Provides support for full-speed (12 Mbps) or low-speed (1.5 Mbps) USB devices.

Dimensions

- WxDxH (in): 8.5x6.0x2.6

Regulatory Approvals

- CE, UL, cUL, RoHS

Control Modes

- Press **Mode** button to cycle through all four modes. LEDs indicate which mode is selected.
- **User 1 Mode**–only User 1 can type or move mouse.
- **User 2 Mode**–only User 2 can type or move mouse.
- **Inst Mode**–keyboard or mouse activates immediately
- **Delay Mode**–locked out user must wait five seconds after last keystroke or mouse movement occurs on active user.

Cables

- One 3-foot female 15HD to male 15HD cable included.
- One 1-meter male USB Type B to male USB Type A cable included.

Configuration and Cable Illustration

VOPEX-USBV-2

AC Adapter

VEXT-3 (Supplied)

USB-AB-1M (Supplied)

USB Peripheral Devices

USB CPU

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DVI VIDEO SPLITTER

Display the same image from one single link digital DVI video source on up to 4 displays

VOPEX-DVI-4 (Front and Back)

Features & Applications

The VOPEX® DVI Video Splitter enables up to four single link digital DVI displays to be driven by a single digital DVI source with no loss of signal.

- Supports DVI interface for crisp and clear video quality on flat panel displays.
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.
- Compliant with DVI 1.0 and HDCP standards.

- Supports the DDC2B protocol.
- Cascade units to add more displays.
- EDID learning for the support of any DVI display device.
- Ideal for digital signage, tradeshows, or classrooms where high quality video on multiple monitors is needed.

Specifications

Video Input

- Compatible with a computer or HDTV video source (satellite receiver, DVD player, etc) with DVI output.
- Multiplatform support: Windows 2000/XP/Vista/7, Windows Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- Female DVI-I connector.
- Signal type: single link digital DVI
  - HDCP compliant

Video Output

- Female DVI-I connectors.
- Signal type: single link digital DVI
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200 at 60 Hz.
- Video bandwidth: 1.65 GHz.
  - HDCP compliant

Power

- 110 to 220 VAC at 50 or 60 Hz via AC adapter.

Dimensions

- 2-port WxDxH (in): 4x3.6x0.9
- 4-port WxDxH (in): 5.6x3.6x1.5

Enviromental

- Operating temperature: 32°F to 118°F (0°C to 48°C).
- Operating Relative Humidity: 30 to 80% non-condensing RH.

Regulatory Approvals

- CE, FCC, RoHS

DVI Video Splitter Models	
NTI Part #	# of Ports
VOPEX-DVI-2	2
VOPEX-DVI-4	4

Configuration and Cable Illustration
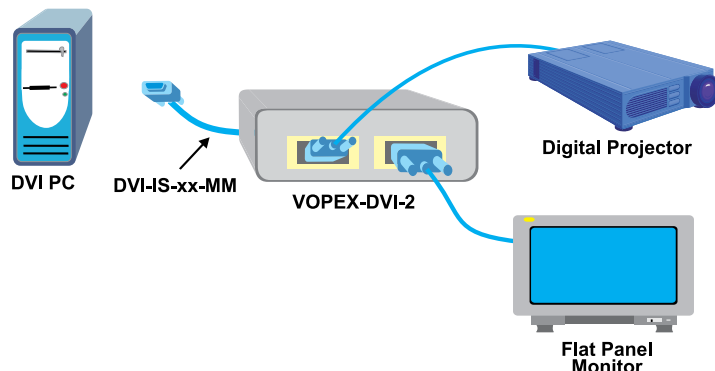
DVI PC

DVI-IS-xx-MM

VOPEX-DVI-2

Digital Projector

Flat Panel Monitor

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VGA VIDEO SPLITTER WITH AUDIO OPTION

Use one computer to display the same image on up to 16 LCD/plasma monitors

Available Option:

- **Audio**

VOPEX-8VA-H (Front and Back)

DIGITAL SIGNAGE

Features & Applications

The VOPEX® VGA Video Splitter enables up to 16 VGA monitors and stereo audio speakers (with audio option) to be driven by a single computer. The same image can be displayed on up to 256 monitors by cascading. The DDC2B protocol is supported from Output-1.

- Crisp and clear 1900x1200 resolution with no degradation.
- Supports VGA monitors, including LCD/plasma flat panel displays.
- Supports the DDC2B protocol.

- Available with optional stereo audio.
- Ideal for classrooms, tradeshows, or digital signage where high quality video on multiple displays is needed.

Specifications

Video Input

- Male 15-pin HD input connector.
- Support a PC, SUN or MAC with VGA video.
- Multiplatform support: Windows 2000/XP/Vista/Server 2000/2003/2008, Solaris, Linux, FreeBSD, and MAC OS 9/10.
- Maximum input levels for video: 1.45Vp-p.
- Input impedance: 75 Ohms.
- Supports Separate and Composite TTL level sync and Sync On Green.
- Sync input frequency ranges:
  - Horizontal: 15 kHz to 130 kHz.
  - Vertical: 30 Hz to 150 Hz.

Video Output

- Female 15-pin HD output connectors.
- Crisp and clear 1900x1200 resolution.
- Bandwidth is 150 MHz.
- Maximum output levels for video: 1.45Vp-p.
- Output impedance: 75 Ohms.
- All outputs are individually buffered.
- All monitors must be able to support the highest resolution of the DDC monitor connected to Output-1.

Optional Audio

- 3.5mm stereo audio jacks.
- Frequency response: 20 Hz to 20 kHz, ±1 dB.
- Total Harmonic Distortion (THD): 0.012%.
- Stereo Crosstalk: -82 dB.
- Input impedance: 10k Ohms.
- CD quality audio output.
- Requires powered speakers.

Power

- 110 or 220 VAC at 50 or 60 Hz.

Power Consumption			
Model	**Watts**	**Model**	**Watts**
VOPEX-2V-H	5	VOPEX-2VA-H	5
VOPEX-4V-H	5	VOPEX-4VA-H	5
VOPEX-8V-H	5	VOPEX-8VA-H	10
VOPEX-16V-H	10		

MTBF			
NTI Part #	**Hours**	**NTI Part #**	**Hours**
VOPEX-2V-H	175,784	VOPEX-2VA	166,448
VOPEX-4V-H	153,392	VOPEX-4AV	144,863
VOPEX-8V-H	135,708	VOPEX-8AV	125,808
VOPEX-16V-H	110,121		

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

- RoHS

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Use one computer to display the same image on up to 16 LCD/plasma monitors

Configuration and Cable Illustration

Flat Panel VGA Monitor

DDC Flat Panel VGA Monitor

Output-1

Use Existing Cables

VEXT-xx
(Optional High Res Extension)

Output-1   **Input**

VOPEX-2V-H

PC SUN MAC

VEXT-3 (Supplied)
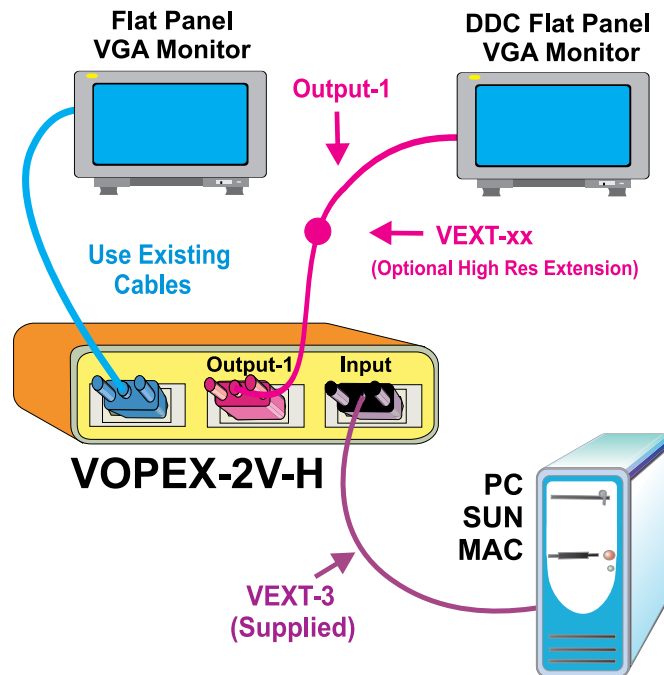
Cables

- Extend 1900x1200 resolution to 50 feet, and 1600x1200 to 100 feet with no degradation using NTI's VEXT-xx cables.
- 3-foot VGA cable included.
- 3-foot audio cable included (with VOPEX-xVA-H).

VGA Video Splitter Models

NTI Part #	# of Ports	Size WxDxH (in.)
VOPEX-2V-H	2	4.9x5.2x1.7
VOPEX-4V-H	4	8x6.2x2.6
VOPEX-8V-H	8	8x6.2x2.6
VOPEX-16V-H	16	10x7.5x3.3

VGA Audio / Video Splitter Models

NTI Part #	# of Ports	Size WxDxH (in.)
VOPEX-2VA-H	2	4.9x5.2x1.7
VOPEX-4VA-H	4	8x6.2x2.6
VOPEX-8VA-H	8	8x6.2x2.6

VOPEX®

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BNC VIDEO SPLITTER / BNC VIDEO SWITCH

Drive many monitors from 1 workstation / Switch 1 monitor between multiple workstations

VOPEX-4A2H
(Front and Back)

SE-5C-2-TTL
(Front and Back)

Features & Applications

The VOPEX® BNC Video Splitter allows you to display video from one Workstation on multiple monitors.

- Ideal for digital sigange, presentations or classrooms.
- 1900x1200 resolution with no degradation.
- Drive up to 64 monitors by cascading.
- Splitters available with RGB, RGBS or RGBHV signal formats.
- A 6-foot multicoax cable is included with each unit.

Specifications

Video Input

- Female BNC connectors.
- RGB input impedance: 75 Ohms for RGB.
- Supports separate and composite TTL level sync and Sync on Green.
- Sync input impedance: 2k Ohms.

Video Output

- Female BNC connectors.
- One volt into 75 Ohms for RGB.
- Impedance of 75 Ohms (back terminated) for RGB.
- Sync is TTL-compatible.
- Bandwidth is 500 MHz.

Power

- 110 or 220 VAC at 50 or 60 Hz.
- Power consumption: 5W

Regulatory Approvals

- RoHS

MTBF			
NTI Part #	Hours	NTI Part #	Hours
VOPEX-3A2H	160,363	VOPEX-4A4H	156,004
VOPEX-3A4H	156,734	VOPEX-5A2H	158,480
VOPEX-3A8H	138,208	VOPEX-5A4H	154,444
VOPEX-4A2H	159,860		

BNC Video Splitter Models			
Signal Format	NTI Part #	# of Ports	Size WxDxH (in)
RGB	VOPEX-3A2H	2	8x6.2x2.6
	VOPEX-3A4H	4	8x6.2x2.6
	VOPEX-3A8H	8	8x6.2x2.6
RGBS	VOPEX-4A2H	2	8x6.2x4
	VOPEX-4A4H	4	8x6.2x4
	VOPEX-4A8H	8	8x6.2x4
RGBHV	VOPEX-5A2H	2	8x6.2x4
	VOPEX-5A4H	4	8x6.2x4
	VOPEX-5A8H	8	8x6.2x4

Features & Applications

The VIDMUX® BNC Video-Only Switch allows you to share one monitor among multiple Workstations.

- Eliminate redundant monitors.
- Available with RS232 control option.

Specifications

2-port Models

- Female BNC connectors.
- Crisp and clear 1900x1200 resolution.
- Bandwidth is 300 MHz.
- Touch buttons on front with LED indication of port selection.
- Power: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 5W
- Regulatory approvals: RoHS
- 6-foot multicoax cable included.

2-port-TTL Models

- Female BNC connectors
- Crisp and clear 1900x1200 resolution.
- Bandwidth is 300 MHz.
- Female 9-pin D connector for remote control.
  - Pin 1 = Ground; Pin 2 = TTL or contact closure signal.
- LED indication of port selection.
- Power: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 5W
- Regulatory approvals: RoHS
- 6-foot multicoax cable included.

4-8 Port Models

- Female BNC connectors.
- Crisp and clear 1900x1200 resolution.
- Bandwidth is 150 MHz.
- Optional RS232 control available.
- Optional rackmount enclosure available.
- Power: 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 5W
- Regulatory approvals:
  - Desktop: RoHS; Rackmount: CE, RoHS

BNC Video Switch Models					
Signal Format	NTI Part#	# of ports	Size WxDxH (in)	Rack Units	Rack Size WxDxH (in.)
RGB	SE-3C-2	2	8.1x6.3x2.5	NA	NA
	SE-3C-2-TTL	2	8.1x6.3x2.5	NA	NA
	SE-3C-4-L	4	8.1x6.3x2.5	2RU	19x10x3.5
	SE-3C-8-L	8	8.1x6.3x2.5	2RU	19x10x3.5
RGBHV	SE-5C-2	2	8.2x6.3x4	NA	NA
	SE-5C-2-TTL	2	8.2x6.3x4	NA	NA
	SE-5C-4-L	4	8.2x6.3x4	3RU	19x10x5.25
	SE-5C-8-L	8	8.2x6.3x4	3RU	19x10x5.25

NTI® NETWORK TECHNOLOGIES INCORPORATED

☎ 800.RGB.TECH (800.742.8324)
Toll Free: US & Canada

330.562.7070
International calls

SSH CONSOLE SWITCH WITH ENVIRONMENTAL MONITORING

Securely control up to 32 RS232 devices via the Internet

SERIMUX-S-16DP (Front and Back)

- **Linux Inside**
- **IPV6 Compatible**

Features & Applications

The SERIMUX® Secure SSH Console Serial Switch delivers secure management of up to 32 serial devices via the internet, TCP/IP network, or dial-up modem connections. It combines the advanced security of Secure Shell v2 with unlimited access to remote network management.

- Operates on an hardened Linux system.
- Connect up to 32 devices with different baud rates, parity, and character length. Each switch also has one RJ45 connector for a local terminal.
- Eliminates the need to connect each device to an ASCII terminal or PC.
- Provides out-of-band access to network devices (servers, routers, network switches, and any other network devices allowing console operation using RS232).
- Connects to console serial ports using standard CAT5/5e/6 cables and cable adapters.
  - Maximum cable length is 1,000 feet.
- Enhanced security features to protect the system – Secure Shell (SSH v2), individual port authentication, HTTPS.
- Dual Ethernet and optional dual power provide redundant connectivity and power.
- High quality, rugged steel construction with durable powder coat finish.
- Gain access to servers without interrupting service to end-users; maintain optimal up-time.

- Monitor environmental conditions.
  - Supports two sensors, including: temperature, humidity, and water detection.
  - When a sensor goes out of range of a configurable threshold, the system will notify you via email, LEDs, web page, and network management (SNMP).
- Power cycle without halting SUN host computer.
  - No inadvertent "break" signals are generated to cause unintentional rebooting of SUN computers.
- Powerful diagnostic and event management features (data capture, notification and scripting) assist in the quick location of the source of equipment failures and minimize downtime.
- USB port provides expanded logging storage, configuration export and additional functionality.
- Switching is simplified with programmable device names and menu-driven device selection.
  - All configuration parameters are stored in non-volatile memory.
  - Import configuration parameters from USB Flash drive.
- Firmware upgradeable "in-field" through console port, Ethernet, or an attached USB Flash drive.

Configuration and Cable Illustration
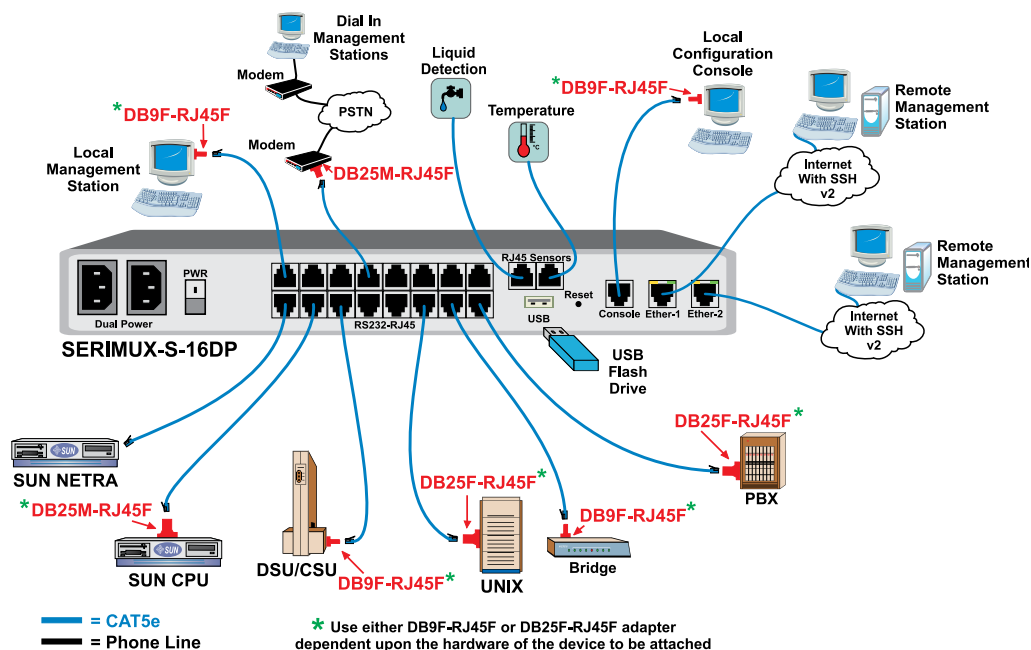
= CAT5e
= Phone Line

* Use either DB9F-RJ45F or DB25F-RJ45F adapter dependent upon the hardware of the device to be attached

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SSH CONSOLE SWITCH WITH ENVIRONMENTAL MONITORING

Securely control up to 32 RS232 devices via the Internet

Specifications

Compatibility

- Supports most devices with an RS232 serial port.
- Supports any VT type terminal.

Serial Interface

- Female RJ45 EIA-232 serial port connectors.
- One female RJ45 EIA-232 console port connector.
- Each individual serial port is fully configurable.
- Data transfer rate: industry-standard baud rates ranging from 50 up to 115.2kbps.
  - Two ports can be at different baud rates.
- Flow control: Hardware (RTS/CTS), Software (XON, XOFF), both or none.
- Data format: 5, 6, 7 or 8 data bits with or without parity, 1 or 2 stop bits.
- Signals: RS232 CTS, DSR, RXD, GND, DCD, TXD, DTR, RTS
- Modem control: DTR/DSR and RTS/CTS

Network Interface

- Two 10/100 Base-T Ethernet ports with RJ45 Ethernet connector
- Supports both static and dynamic IP addresses

Power

- Input Voltage: AC 100 to 240 V, 50 to 60 Hz
- Optional 48 VDC power
- Optional dual AC power or dual DC power available on all models

RJ45 Sensor Ports

- Two RJ45 modular jacks for connecting NTI temperature, humidity, temperature/humidity, and liquid detection sensors.

Internal Temperature Sensor

- Applications from 32°F to 104°F (0°C to 40°C).
- Accurate to within ±1.35°F (±0.75°C).

Control Methods

- HTTP/HTTPS Web Interface, Telnet/SSH, System console.
- Supports up to 32 users.
- Two user levers: User and Administrator.

LED Indicators

- Full featured status display via LED indicators:
  - CPU – power.
  - Console – device activity.
  - Ethernet – connection/speed/activity.
  - Each Serial Port – device activity.
  - "INT ALERT" – internal sensor goes out of range of a configurable threshold.
  - "EXT ALERT" – external sensor goes out of range of a configurable threshold.

Protocols

- SSH V2, Telnet
- IPV4, IPV6
- TCP/IP, TFTP, DHCP, ICMP, UDP, ARP
- HTTP, HTTPS, SMTP, SNMP V1/V2c, Syslog, SNTP
- IPMI v2, RMCP

Alerts

- Alerts are sent using email and/or SNMP traps when any monitored environmental condition exceeds a user-specified range.
  - Alerts are posted in message log, which is accessible through Web user interface.
  - Sends notifications of alerts to a maximum of 17 email addresses and/or SNMP addresses. The users can configure the schedule when they will be alerted.

Memory

- 32MB Flash memory.
- Female USB 2.0 Type A connector for storage devices.

Logging & Buffering

- System log, event-log of user activity and on-line data buffering.
- Data-logging with date and time-stamp, locally.
- The log can be downloaded as a tab-delimited plain text file and/or sent to an external syslog server.

Regulatory Approvals

- CE, RoHS

Environmental

- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -20°F to 140°F (-30°C to 60°C)
- Operating and Storage Relative Humidity: 17 to 90% non-condensing RH

MTBF			
NTI Part #	Hours	NTI Part #	Hours
SERIMUX-4	46,899	SERIMUX-16-48V	33,524
SERIMUX-4DP	111,676	SERIMUX-16-48VDP	100,385
SERIMUX-4-48V	34,695	SERIMUX-24	42,980
SERIMUX-4-48VDP	111,677	SERIMUX-24DP	91,754
SERIMUX-8	43,306	SERIMUX-24-48V	32,503
SERIMUX-8DP	108,371	SERIMUX-24-48VDP	91,755
SERIMUX-8-48V	34,370	SERIMUX-32	42,004
SERIMUX-8-48VDP	108,372	SERIMUX-32DP	87,420
SERIMUX-16	44,783	SERIMUX-32-48V	31,942
SERIMUX-16DP	100,384	SERIMUX-32-48VDP	87,421

Security

- Local DB authentication.
- Remote authentication using RADIUS, LDAP, TACACS+, Active Directory and Kerberos protocols.
- TLS/SSL secure communications.
- SSH v1, SSH v2, SSL.
- AES, 3DES/DES, Blowfish, Twofish, RSA, EDH-RSA, Arcfour Encryptions.

SSH CONSOLE SWITCH WITH ENVIRONMENTAL MONITORING

Securely control up to 32 RS232 devices via the Internet

Sensors

Temperature, Humidity & Combination Sensor

**ENVIROMUX-STS
ENVIROMUX-SHS
ENVIROMUX-STHS**

- Temperature Sensor (ENVIROMUX-STS)
  - Applications from 32°F to 122°F (0° to 50°C).
  - Accurate to within ±0.9°F (±0.5°C).
- Humidity Sensor (ENVIROMUX-SHS)
  - 20% to 80% relative humidity, ±5%
    - For applications from 32°F to 104°F (0°C to 40°C)
- Temperature/Humidity Sensor (ENVIROMUX-STHS)
  - Applications from 32°F to 122°F (0°C to 50°C)
  - Accurate to within ±0.9°F (±0.5°C)
    - 20% to 80% relative humidity, ±5%
- RJ45 connector
- Supports CAT5/5e/6 cable up to 1,000 ft (not included).
- Regulatory approvals: CE, RoHS

Liquid Detection Sensor

ENVIROMUX-LDSx-y

- For warning of flooding.
- Detects liquid depth >0.1".
- Minimum puddle: 0.6" diameter.
- 100% waterproof electronics.
- Detects any liquid, except deionized water.
- Supports CAT5/5e/6 cable up to 1,000 ft. (not included).
- Available water sensor cable (x) lengths: 1/10/50/100/200/400/600/800/1000 feet.
- Available 2-wire cable (y) lengths: 5/10/20/50/100 feet.
- Regulatory approvals: CE, RoHS

Ordering Specifications

This example explains the SERIMUX switch part number by breaking it down into the available options. When ordering, choose the options that you require.

	Secure	Number of Ports	Power	Optional Dual Power

SERIMUX - S - *x* - 48V DP

Blank = AC power
48V = 48VDC power

Secure SSH Console Switch with Environment Monitoring Models

NTI Part#	# of Ports	Desktop Size (WxDxH)	Rack Units	Rack Size (WxDxH)
SERIMUX-S-4	4	16.2x9x1.75 (without supplied rackmount kit)	1RU	19x9x1.75 (with supplied rackmount kit)
SERIMUX-S-8	8	16.2x9x1.75 (without supplied rackmount kit)	1RU	19x9x1.75 (with supplied rackmount kit)
SERIMUX-S-16	16	16.2x9x1.75 (without supplied rackmount kit)	1RU	19x9x1.75 (with supplied rackmount kit)
SERIMUX-S-24	24	17x10.1x1.75 (without supplied rackmount kit)	1RU	19x10.1x1.75 (with supplied rackmount kit)
SERIMUX-S-32	32	17x10.1x1.75 (without supplied rackmount kit)	1RU	19x10.1x1.75 (with supplied rackmount kit)

Cables

- Use CAT5, CAT5e or CAT6 UTP straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors.
- One 6-foot CAT5 cable included.

Adapters

- Four cable adapters are included with the SERIMUX-S-x.
  - Male DB-25 to female RJ45 console adapter.
  - Male DB-25 to female RJ45 modem adapter.
  - Female DB-9 to female RJ45 console adapter.
  - Female DB-25 to female RJ45 console adapter.
- Additional adapters can be purchased.

CONSOLE SWITCH WITH ETHERNET CONTROL OPTION

Manage up to 32 serial devices – routers, switches, hubs, etc.

SERIMUX-CS-32E (Front and Back)

- • **Secure Web access (HTTPS) with Ethernet control option**

Features & Applications

The SERIMUX® Console Switch gives IT managers the ability to cost effectively manage serial devices, including servers, switches, routers, and telecom gear. The switch can be controlled via an ASCII terminal with menu-driven integrated software, the front panel keypad, or optional Ethernet interface.

- ■ Eliminates the need to connect each device to an ASCII terminal or PC.
- ■ Connect up to 32 devices with different baud rates, parity, and character length. Each switch also has one RJ45 connector for a local terminal.
- ■ Provides out-of-band access to network devices (servers, routers, network switches, and any other network devices allowing console operation using RS232).
- ■ Power cycle without halting SUN host computer.
  - • No inadvertent "break" signals are generated to cause unintentional rebooting of SUN computers.
- ■ Dual power option creates a redundant power system protecting the console switch from any power failure issues.
- ■ Connects to console serial ports using standard CAT5/5e/6 cables and cable adapters.
  - • Maximum cable length is 1,000 feet.
- ■ Command Line Interface via Telnet for advanced management functions.

- ■ Two operator levels (administrator and user).
- ■ Switching is simplified with programmable device names and menu-driven device selection.
  - • All configuration parameters are stored in non-volatile EEPROM.
- ■ Built-in data buffers save the most recent RS232 console output from each connected device, which simplifies troubleshooting failures.
- ■ Local commands can be directed via VT52, VT100, ANSI serial console, a PC with a terminal emulation program, or any compliant terminal.
- ■ Gain access to servers without interrupting service to end-users; maintain optimal up-time.
- ■ High quality rugged steel construction with durable powder coat finish.
- ■ 1RU rackmount case is standard.

Configuration and Cable Illustration

DB9F-RJ45F*   DB25F-RJ45F*

SUN CPU

DB25F-RJ45F*

ROUTER

DSU/CSU   UNIX

BRIDGE

DB9F-RJ45F*

DB25F-RJ45F*

SERIMUX-CS-16E   Console Ethernet

PBX

Optional Ethernet

DB25F-RJ45F*

MODEM

Local Configuration Console/Terminal User

Ethernet/ LAN Switch

Remote Management Station

—— = CAT5 PATCH CORD

REMOTE DIAL-IN USER

*Use either DB9F-RJ45F or DB25F-RJ45F adapter dependent upon the hardware of the device to be attached

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CONSOLE SWITCH WITH ETHERNET CONTROL OPTION

Manage up to 32 serial devices – routers, switches, hubs, etc.

Specifications

Compatibility

- Supports most devices with an RS232 serial port.

Serial Interface

- Female RJ45 EIA-232 serial port connectors.
- One female RJ45 EIA-232 console port connector.
- Flow control: Hardware (RTS/CTS), Software (XON, XOFF), both or none.
- Signals: TXD, RXD, DSR, DTR, CTS, RTS, DCD
- Data transfer rate: up to 115.2K baud between two ports.
  - Two ports can be at different baud rates.

Distances and Baud Rates for CAT5/5e/6 Cables

Distances (feet)	Speed (Baud)
1000	9,600
500	57,600
250	115,200

Power

- Input voltage: AC 100 to 240V, 50 to 60Hz
- Optional dual power available on all models.

Power Consumption

Model	Watts	Model	Watts
4-port	5	24-port	10
8-port	5	32-port	10
16-port	10		

Network Interface (Optional)

- 10/100 BaseT Ethernet port with RJ45 connector.
- Supports static and dynamic IP addresses.

Protocols (For Optional Ethernet Control)

- HTTP, HTTPS (SSL/TLS), ICMP, DHCP.
- TCP/IP, Telnet.

MTBF

NTI Part #	Hours	NTI Part #	Hours
SERIMUX-CS-4	57,847	SERIMUX-CS-16DP	53,107
SERIMUX-CS-4E	50,793	SERIMUX-CS-EDP	47,280
SERIMUX-CS-4DP	57,695	SERIMUX-CS-24	50,304
SERIMUX-CS-4EDP	50,661	SERIMUX-CS-24E	45,045
SERIMUX-CS-8	54,652	SERIMUX-CS-24DP	50,198
SERIMUX-CS-8E	48,506	SERIMUX-CS-24EDP	44,959
SERIMUX-CS-8DP	54,526	SERIMUX-CS-32	48,240
SERIMUX-CS-8EDP	48,406	SERIMUX-CS-32E	43,383
SERIMUX-CS-16	53,238	SERIMUX-CS-32DP	48,143
SERIMUX-CS-16E	47,383	SERIMUX-CS-32EDP	43,304

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

Control Methods

- Front panel keypad.
  - Secured by a user-defined numeric password.
- Menu-driven integrated software via serial terminal console.
- Optional Ethernet control.
  - Configuration and control can be done over the Internet via Web Interface or Telnet.
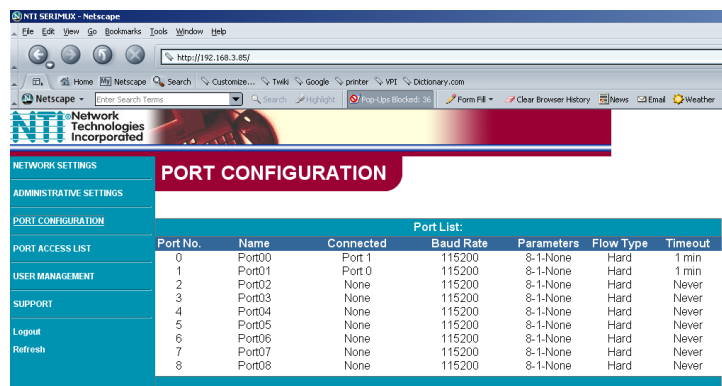
Screenshot of the Web server interface

Command Line Interface

- Remote administration and maintenance of the SERIMUX Console Serial Port Switch.
- Execute frequently performed configuration tasks through script files.
- Save the configuration of the switch, and perform configuration restoration if needed.
- Restore default configuration parameters to specific parts of the switch, while leaving other custom configuration parameters intact.
- User passwords become "invisible" while viewing the buffers.

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CONSOLE SWITCH WITH ETHERNET CONTROL OPTION

Manage up to 32 serial devices – routers, switches, hubs, etc.

Control Methods (Continued)

Administrative Controls

- View and/or modify port parameters.
- View and/or modify user passwords and parameters.
- Restore default configuration parameters.
- Connect or disconnect port connections.
- Change/disconnect users, administrators, passwords, etc.
- Initiate modem connection to local ports.
- Inspect buffered data.
- View/delete port-buffer (data-log) contents.
- User passwords become "invisible" while viewing the buffers.
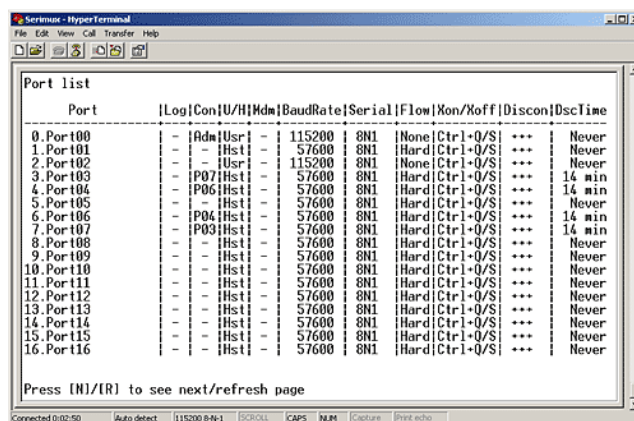
Screenshot of menu-driven integrated software

Console Serial Port Switch Models

NTI Part#	# of Ports	Options	Desktop Size (without rackmount kit) WxDxH (in.)	Rack Size (with supplied rackmount kit) WxDxH (in.)
SERIMUX-CS-4	4	N/A	9x6x1.75	19x6x1.75
SERIMUX-CS-4E	4	Ethernet	9x6x1.75	19x6x1.75
SERIMUX-CS-4DP	4	Dual Power	11x6x1.75	19x6x1.75
SERIMUX-CS-4EDP	4	Ethernet, Dual Power	11x6x1.75	19x6x1.75
SERIMUX-CS-8	8	N/A	15.3x6x1.75	19x6x1.75
SERIMUX-CS-8E	8	Ethernet	15.3x6x1.75	19x6x1.75
SERIMUX-CS-8DP	8	Dual Power	16.2x6x1.75	19x6x1.75
SERIMUX-CS-8EDP	8	Ethernet, Dual Power	16.2x6x1.75	19x6x1.75
SERIMUX-CS-16	16	N/A	15.3x6x1.75	19x6x1.75
SERIMUX-CS-16E	16	Ethernet	15.3x6x1.75	19x6x1.75
SERIMUX-CS-16DP	16	Dual Power	16.2x6x1.75	19x6x1.75
SERIMUX-CS-16EDP	16	Ethernet, Dual Power	16.2x6x1.75	19x6x1.75
SERIMUX-CS-24	24	N/A	15.3x6x1.75	19x6x1.75
SERIMUX-CS-24E	24	Ethernet	15.3x6x1.75	19x6x1.75
SERIMUX-CS-24DP	24	Dual Power	16.2x6x1.75	19x6x1.75
SERIMUX-CS-24EDP	24	Ethernet, Dual Power	16.2x6x1.75	19x6x1.75
SERIMUX-CS-32	32	N/A	15.3x6x1.75	19x6x1.75
SERIMUX-CS-32E	32	Ethernet	15.3x6x1.75	19x6x1.75
SERIMUX-CS-32DP	32	Dual Power	16.2x6x1.75	19x6x1.75
SERIMUX-CS-32EDP	32	Ethernet, Dual Power	16.2x6x1.75	19x6x1.75

Adapters

- Four cable adapters are included with the SERIMUX.
  - Male DB-25 to female RJ45 console adapter.
  - Male DB-25 to female RJ45 modem adapter.
  - Female DB-9 to female RJ45 console adapter.
  - Female DB-25 to female RJ45 console adapter.
- Additional adapters available.

Cables

- Use CAT5, CAT5e or CAT6 UTP straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors.
- Cables not included.

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DVI / HDMI VIDEO SWITCH WITH AUDIO

Switch one DVI/HDMI display and speakers between multiple video sources

NEW

VIDMUX® SE-DVI-4A (Front & Back)

Features & Applications

The VIDMUX® DVI/HDMI video switch enables one DVI/HDMI display and speakers to be switched between up to four single link digital DVI/HDMI video sources.

- Supports DVI interface for crisp and clear video quality on flat panel display.
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.
- Eliminates redundant video displays.
- Compliant with HDMI 1.3 and HDCP standards.
- Supports the DDC2B protocol.

- 3.5mm stereo audio input for each channel.
- Passes HDMI audio signal through DVI-I port.
  - Transmit audio and video over a single cable with the DVI-HDMI-xx-MM male DVI-D to male HDMI cable.
- Control via top panel push button or infared remote (IR) control.
- IR remote control includes power on/off, mute function, and break-away audio (switch audio independent of video).

Specifications

Audio/Video Input

- Female DVI-I connectors.
- 3.5mm stereo audio jacks.
- Compatible with computers and HDTV video sources (satellite receivers, DVD players, etc) with single link digital DVI outputs.

Audio/Video Output

- One female DVI-I connector.
- One 3.5mm stereo audio jack.
- Single link DVI-D signal.
- Supports HDTV resolutions to 1080p and computer resolutions to 1920x1200.

Power

- 100 to 240 VAC at 50 or 60 Hz via AC Adapter.

Dimensions

- WxDxH (in): 2.3x6.4x1.1

Regulatory Approvals

- CE, FCC

Cables

- Use DVI-IS-xx-MM male to male DVI-I cable and SA-xx-MM male to male stereo audio cable to connect a DVI source or display and speakers (not included).
- Use DVI-HDMI-xx-MM male DVI-D to male HDMI interface cable to connect a video source or display with integrated speakers (not included).
- SE-DVI-2A: Three 6-inch male to female stereo audio low-profile extension cables included.
- SE-DVI-4A: Five 6-inch male to female stereo audio low-profile extension cables included.

Configuration and Cable Illustration

— = DVI-IS-xx-MM
— = SA-xx-MM
— = DVI-HDMI-xx-MM

Satellite Receiver with HDMI output

DVI HDTV with Stereo Audio

SE-DVI-2A

AC Adapter

PC with DVI output

DVI/HDMI Video Switch with Audio Models	
NTI Part#	# of Ports
SE-DVI-2A	2
SE-DVI-4A	4

VGA VIDEO SWITCH WITH AUDIO & RS232 OPTIONS

Switch one monitor between 16 computers

Features & Applications

The VIDMUX® VGA Video Switch enables up to 16 computers to be connected to a single video monitor, projector or LCD/plasma screen and stereo audio speakers (with audio option).

- Compatible with PCs, SUNs and MACs with VGA video.
- Eliminate redundant monitors.
- Ideal for classrooms and boardrooms.
- Interconnect NTI switches and splitters for complex applications.
- Available with audio and/or RS232 control options.

VIDMUX® SE-AV-8-RS (Front & Back)

Specifications

For 2-port Models

Video

- Crisp and clear 1900x1200 resolution.
- Bandwidth: 150 MHz.
- 15-pin HD connectors (See ordering specifications for gender.)

Power

- 110 or 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 5W

Control

- Touch button on front with LED indication of port selection.
- Optional RS232 control.

MTBF

- SE-15V-2-2C1U: 88,015 hrs
- SE-15V-2-2U1C: 88,231 hrs

Regulatory Approvals

- CE, RoHS

Dimensions

- WxDxH(in): 8x6.2x2.6

For 2-port-TTL Models

Video

- Crisp and clear 1900x1200 resolution.
- Bandwidth: 150 MHz.
- 15-pin HD connectors (See ordering specifications for gender.)

Power

- 110 to 220 VAC at 50 or 60 Hz via AC adapter.
- Power consumption: 5W

Control

- Female 9-pin D connector for remote control.
  - Pin 1 = Ground.
  - Pin 2 = TTL or contact closure signal.

MTBF

- SE-15V-2-2C1U-TTL: 87,403 hrs
- SE-15V-2-2U1C-TTL: 87,616 hrs

Regulatory Approvals

- CE, RoHS

For 4-16 Port Models

Video

- Crisp and clear 1900x1200 resolution.
- Bandwidth: 150 MHz.
- Female 15-pin HD connectors.

Power

- 110 or 220 VAC at 50 or 60 Hz via IEC connector.
- Power consumption:
  - 4-port and 8-port: 5W
  - 16-port: 10W

Control

- Touch buttons on front with LED indication of port selection.
- Scan Mode automatically and sequentially displays the video from each powered-on computer.
- Optional RS232 control.

MTBF			
NTI Part #	Hours	NTI Part #	Hours
SE-15V-4-L	81,837	SE-15V-8-RS	73,669
SE-15V-4-RS	79,445	SE-15V-16-L	71,329
SE-15V-8-L	75,871	SE-15V-16-RS	72,276

Dimensions

- SE-15V-4-L/RS and SE-15V-8-L/RS WxDxH (in):
  - 10.9x6x1.75 (without supplied rackmount kit)
  - 19x6x1.75 (with supplied rackmount kit)
- SE-AV-4-L/RS and SE-AV-8-L/RS WxDxH (in):
  - 15.3x6x1.75 (without supplied rackmount kit)
  - 19x6x1.75 (with supplied rackmount kit)
- SE-15V-16-L/RS WxDxH (in): 10.9x6x3.5
- SE-AV-16-L/RS WxDxH (in): 15.3x6x3.5

Regulatory Approvals

- CE, RoHS

VGA VIDEO SWITCH WITH AUDIO & RS232 OPTIONS

Switch one monitor between 16 computers

Configuration and Cable Illustration

VEXT-xx (Video Extension)

SE-15V-2C1U-2

VEXT-3 (Supplied)

PC SUN MAC

Use Existing Cable

Audio Option

- 3.5mm stereo audio jacks for inputs and output.
- Input impedance: 10k Ohms.
- Maximum input level: 2.5 Vp-p.
- Maximum load: 32 Ohms.
- Signal-to-Noise Ratio (SNR): >92 dBA
- Frequency Response: 20 Hz to 20 kHz, ±0.5 dB.
- Total Harmonic Distortion + Noise: <0.06% at 1kHz.
- Requires powered speakers or headphones.
- CD quality audio output.

Ordering Specifications

This example explains the VIDMUX (2-port) switch part number by breaking it down into the available options. When ordering, choose the options that you require.

SE - 15V - 2 - 2C1U - TTL

Number of Computers and Monitors

Option

2C1U = 2 Computers, 1 Monitor
2U1C = 2 Monitors, 1 Computer

TTL = TTL Control Method
A = Audio
RS = RS232

VGA Video Switch Models (2 Ports)		
NTI Part#	**Description**	**15 HD Connectors**
SE-15V-2-2C1U	2 Computers, 1 Monitor	2 Male, 1 Female
SE-15V-2-2U1C	2 Monitors, 1 Computer	2 Female, 1 Male

This example explains the VIDMUX (4-, 8-, or 16-port) switch part number by breaking it down into the available options. When ordering, choose the options that you require.

SE - 15V - x - L - RS R

Video-Only or Audio/Video Switch | Number of Inputs | Local Control Method | Optional Control Method | Optional Rackmount Enclosure

15V = Video Only
AV = Audio/Video

"x" = 4, 8, 16

RS = RS232
IR = Infrared

Only available on 16-port switch

- Delete the "L" from the NTI part number for remote push button control for 4 to 16-port units.

VGA Video Switch Models (4, 8, or 16 Ports)		
NTI Part#	**Description**	**# of Ports**
SE-15V-4-L	1 monitor, 4 computers	4
SE-15V-8-L	1 monitor, 8 computers	8
SE-15V-16-L	1 monitor, 16 computers	16

Audio Video Switch Models (4, 8, or 16 Ports)		
NTI Part#	**Description**	**# of Ports**
SE-AV-4-L	1 monitor, 1 set of speakers, 4 computers	4
SE-AV-8-L	1 monitor, 1 set of speakers, 8 computers	8
SE-AV-16-L	1 monitor, 1 set of speakers, 16 computers	16

Cables

Cables for 2-port and -TTL Models

- A three-foot multicoax cable is provided for connecting your computer to the 2-port switch.
- Interface cables between additional computers and the switch are required for proper operation. (Cables not included.)
- Audio cables required for audio option: SA-xx-MM.

Cables for 4-16 Port Models

- Interface cables between computers and the switch are required for proper operation.
- Cables not included.

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CABLE TERMINATOR WALLPLATE

Field terminate audio video cables for TV/monitor and audio speaker cable extension

WP-CSA (Front)   **WP-AV (Front)**   **WP-A (Front)**   **WP-VGA (Front)**   **WP-CV (Front)**

Features & Applications

The Cable Terminator Wallplate connects a television/monitor and stereo speakers to video and audio distribution wiring within a wall. It can be used to connect VGA video, composite video or S-Video televisions/monitors to home entertainment systems, cable television boxes, DVD players, etc. The cable terminator wallplate features set-screw terminal slots that accommodate straight routing of the wires for easy, clean connections.

- The wallplate is available in five models:
  - VGA
  - VGA and Stereo Audio
  - Stereo Audio
  - VGA and Composite Video
  - S-Video, Composite Video and Stereo Audio

- No special tools needed. Terminal block design with set screws provides reliable electrical connections.
- Connectors on the back of the wallplate are specially oriented to permit an almost straight routing of the wires.
- Proper installation is practically foolproof. The terminal block area is clearly marked, and a wiring diagram is included.
- Eliminates cable clutter.

Specifications

Compatibility

- WP-VGA: supports any VGA monitor.
- WP-AV: supports any VGA monitor and unbalanced stereo audio.
- WP-A: supports unbalanced stereo audio.
- WP-CV: supports any VGA or composite video TV/monitor.
- WP-CSA: supports any S-Video or composite video TV/monitor and unbalanced stereo audio.

Wallplate

- Standard single-wide wallplate.
- Size (WxDxH): 2.8x1.1x4.5 inches.
- The terminal block extends 0.65 inches for WP-AV, WP-VGA, WP-A and WP-CV, and one inch for WP-CSA from the back of wallplate.
- The connectors protrude less than 1/2 inch from front of wallplate.
- 3.25 inches between two mounting holes.

Connectors

- WP-VGA: one female 15-pin HD connector.
- WP-AV: one female 15-pin HD connector, one 3.5mm stereo audio jack.
- WP-A: one 3.5mm stereo audio jack.
- WP-CV: one female 15-pin HD connector, one RCA composite video jack.
- WP-CSA: one female 4-pin miniDIN connector, one RCA composite video jack, one set (right and left) of RCA audio jacks.
- Internal cable connectors:
  - WP-VGA, WP-AV and WP-CV: terminal block, 2x12 positions.
  - WP-CSA: terminal block, 1x12 positions.
  - WP-A: terminal block, 1x6 positions.
- Cable routing: straight.

Electrical Box

- Single gang, standard US.

Regulatory Approvals

- CE, RoHS
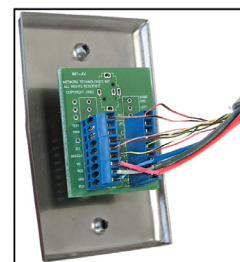
WP-AV (Back)

Cable Terminator Wallplate Models

NTI Part #	Description
WP-AV	VGA and Stereo Audio Cable Terminator
WP-VGA	VGA only Cable Terminator
WP-A	Stereo Audio Cable Terminator
WP-CSA	S-Video, Composite Video and Stereo Audio Cable Terminator Wallplate
WP-CV	VGA and Composite Video Cable Terminator

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www.networktechinc.com/cable-pc.html

Male 15HD   Female 15HD

VEXT-3/6/10/15/25/35/50/75/100
VGA male to female cable
0.35" diameter
3 to 100 feet

Female 15HD   Male 15HD

VEXT-PLNM-25/50/75/100
Plenum VGA male to female cable
0.30" diameter
25 to 100 feet

Female 15HD   Male 15HD

VEXT-FLT-3/6/10/15/25/35/50
Flat VGA female to male cable
0.20" thick
3 to 50 feet

Male 15HD   Male 15HD

VEXT-1-5/3/6/10/15/25/35/50/75/100-MM
VGA male to male cable
0.35" diameter
1.5 to 100 feet

Male 15HD   Male 15HD

VEXT-PLNM-25/50/75/100-MM
Plenum VGA male to male cable
0.30" diameter
25 to 100 feet

Male 15HD   Male 15HD

VEXT-FLT-1-5/3/6/10/15/25/35/50-MM
Flat VGA male to male cable
0.20" thick
1.5 to 50 feet

Male 15HD   Female 15HD
Male USB A   Female USB A

USBVEXT-3/6/10
VGA and USB male to female cable
3 to 10 feet

Male 15HD   Female 15HD
Two Male 6-pin miniDIN   Two Female 6-pin miniDIN

VKMEXT-3/6/10/15/25/35/50/75/100
VGA, PS2 keyboard and mouse
male to female cable
3 to 100 feet

Female 15HD   Male 15HD

VEXT-THN-1.5/3/6/10/15/25/35/50
Thin VGA female to male cable
0.22" diameter
1.5 to 50 feet

Male 15HD   Male 15HD
Male USB A   Male USB B

USBVEXT-3/6/10/15-MM
VGA and USB male to male cable
3 to 15 feet

Male 15HD   Male 15HD
Two Male 6-pin miniDIN   Two Male 6-pin miniDIN

VKMEXT-3/6/10/15/25/35/50/75/100-MM
VGA, PS2 keyboard and mouse
male to male cable
3 to 100 feet

Male 15HD   Male 15HD

VEXT-THN-1.5/3/6/10/15/25/35/50-MM
Thin VGA male to male cable
0.22" diameter
1.5 to 50 feet
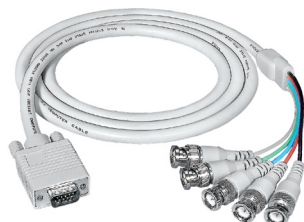
Male 15HD   Five Male BNC

VINT-5B-6
Male VGA to male BNC cable
6 feet

Male 15HD   Male 15HD
3.5 mm Stereo Plug   3.5mm Stereo Plug

AVEXT-10/15/25/50/75/100-MM
VGA and stereo audio
male to male cable
10 to 100 feet

Male 15HD   Male 15HD

VEXT-UTHN-1-5/3/6/10-MM
Ultra thin VGA male to male cable
0.19" diameter
1.5 to 10 feet

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USB ADAPTERS & SUN PC CABLES

Connect USB computers to SUN PC KVM switches / Connect legacy computers to USB KVM switches

USB Adapters

Two Female 6-pin miniDIN   Male USB A

USB-PS2

Connect USB PC computer to NTI legacy SUN PC switch, or connect PS2 keyboard and mouse to USB computer (PC, SUN, MAC)
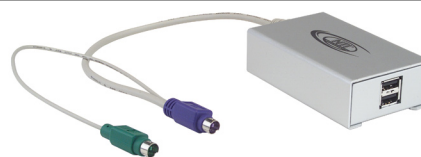
Two Male 6-pin miniDIN   Two Female USB A

USB-PS2-R

Connect legacy PS2 computer to NTI USB switch, or connect USB keyboard and mouse to legacy PS2 computer
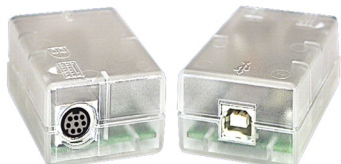
Female 8-pin miniDIN   Female USB B

USB-SUN

Connect SUN USB computer to NTI legacy SUN PC switch, or connect legacy SUN keyboard to SUN USB computer

Male 8-pin miniDIN   Two Female USB A

USB-SUN-R

Connect legacy SUN computer to NTI USB switch, or connect SUN USB keyboard and mouse to legacy SUN computer

Female USB A   Male USB A

USB-APA-5M

Extend a USB 1.1 device by an additional 5 meters; use 2 cables in series plus a five meter USB cable for up to 15 meters; PC, SUN & MAC fully supported

Female USB A   Male USB A

USB2-AA-5M

Extend a USB 2.0 device by an additional 5 meters; supports PC; use 4 cables in a series plus a five meter USB cable for up to 25 meters

Legacy Cables

Male 8-pin miniDIN   Two Female 6-pin miniDIN

VKTINT-1
Interface PS/2 keyboard and mouse
to NTI legacy SUN PC KVM switch
1 foot

Two Male 6-pin miniDIN   Male 8-pin miniDIN

VKTINT-3/6/10/15/25/35/50-MM
Interface PS/2 keyboard and mouse ports
to NTI legacy SUN PC KVM switch
3 to 50 feet

Male 8-pin miniDIN   Male 8-pin miniDIN

SKTINT-3/6/10/15/25/35/50-MM
Interface SUN keyboard port
to NTI legacy SUN PC KVM switch
3 to 50 feet

Two Male 6-pin miniDIN   Two Female 6-pin miniDIN

VVKINT-3/6/10/15/25
VVKEXT-35/50/75/100
PS2 keyboard and mouse male to female cable
3 to 100 feet

Two Male 6-pin miniDIN   Two Male 6-pin miniDIN

VVKINT-3/6/10/15/25/35/50-MM
VVKEXT-75/100-MM
PS2 keyboard and mouse male to male cable
3 to 100 feet

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High quality NTI cables

Male 26-pin SCSI-2   Male 15HD   Two Male 6-pin miniDIN

VMTINT-3/6/10/15/25-MM (Male to Male Cable)
VMTINT-3/6/10/15/25 (Male to Female Cable)
NTI NODEMUX High Density SUN PC KVM
Matrix Switch Cables (PS/2)

Male 26-pin SCSI-2   Male 15HD   Male 8-pin miniDIN

SMTINT-3/6/10/15/25-MM (Male to Male Cable)
SMTINT-3/6/10/15/25 (Male to Female Cable)
NTI NODEMUX High Density SUN PC KVM
Matrix Switch Cables (SUN)
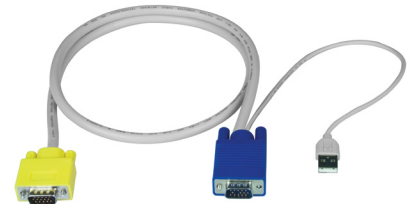
Male 15HD   Male 15HD   Male USB A

HDUSBVEXT-3/6/10/15-MM (Male to Male Cable)
NTI UNIMUX High Density
VGA USB KVM Switch Cables

Male HDMI A   Male DVI-D   Male USB A

USB-DHEXT-3/6/10/15-MM (Male to Male Cable)
NTI UNIMUX High Density DVI
USB KVM Switch Cables

Male 26-pin SCSI-2   Male 15HD   Male USB A

UMTINT-3/6/10/15-MM (Male to Male Cable)
UMTINT-3/6/10 (Male to Female Cable)
NTI XTENDEX Rackmount USB
KVM Extender Module Cables

Male 26-pin SCSI-2   Male 15HD   Male 3.5mm   Male USB A

UMATINT-3/6/10/15-MM (Male to Male Cable)
UMATINT-3/6/10 (Male to Female Cable)
NTI XTENDEX Rackmount USB KVM +
Audio Extender Module Cables
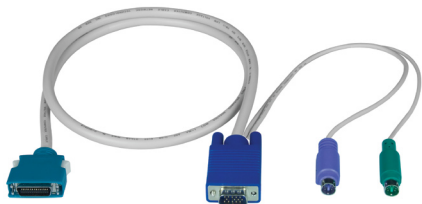
Male 26-pin SCSI-2   Male 15HD   Two Male 6-pin miniDIN

VMCTINT-3/6/10/15/25-MM (Male to Male Cable)
VMCTINT-3/6/10/15/25 (Male to Female Cable)
NTI XTENDEX Rackmount PS/2
KVM Extender Module Cables
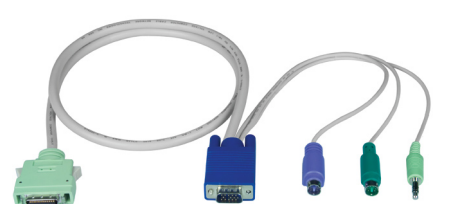
Male 26-pin SCSI-2   Male 15HD   Two Male 6-pin miniDIN   Male 3.5mm

VMATINT-3/6/10/15/25-MM (Male to Male Cable)
VMATINT-3/6/10/15/25 (Male to Female Cable)
NTI XTENDEX Rackmount PS/2 KVM +
Audio Extender Module Cables
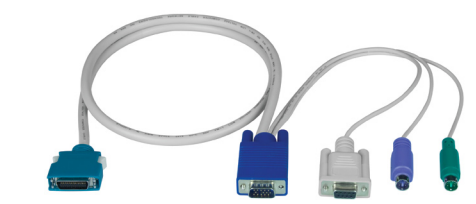
Male 26-pin SCSI-2   Male 15HD   Female 9-pin miniDIN   Two Male 6-pin miniDIN

VMRSTINT-3/6/10/15-MM (Male to Male Cable)
VMRSTINT-3/6/10/15 (Male to Female Cable)
NTI XTENDEX Rackmount PS/2 KVM +
RS232 Extender Module Cables

Male 26-pin SCSI-2   Male 15HD

VTINT-3/6/10/15/25-MM (Male to Male Cable)
VTINT-3/6/10/15/25 (Male to Female Cable)
NTI XTENDEX Rackmount VGA
Extender Module Cables

Male 26-pin SCSI-2   Male 15HD   Male 3.5mm

VATINT-3/6/10/15/25-MM (Male to Male Cable)
VATINT-3/6/10/15/25 (Male to Female Cable)
NTI XTENDEX Rackmount VGA +
Audio Extender Module Cables
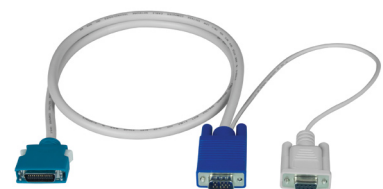
Male 26-pin SCSI-2   Male 15HD   Female 9-pin miniDIN

VRSTINT-3/6/10/15-MM (Male to Male Cable)
VRSTINT-3/6/10/15 (Male to Female Cable)
NTI XTENDEX Rackmount VGA +
RS232 Extender Module Cables

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BNC CABLES AND CONSTRUCTION

High quality NTI cables

BNC Cables

Three Male BNC | Three Male BNC
3CINT-6
6 foot RGB video, mini coax
0.50" diameter
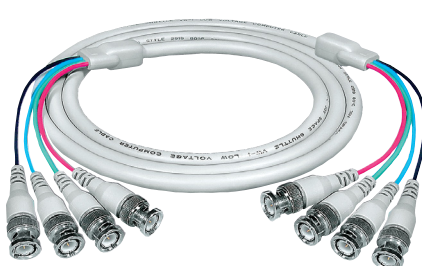
Four Male BNC | Four Male BNC
4CINT-6
6 foot RGBS video, mini coax
0.35" diameter
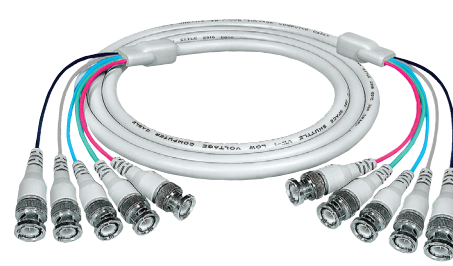
Five Male BNC | Five Male BNC
5CINT-6
6 foot RGBHV video, mini coax
0.35" diameter
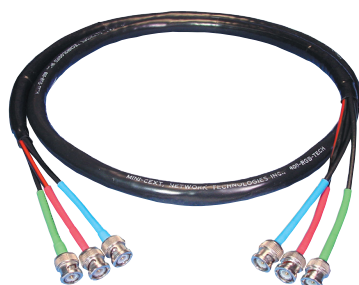
Three Male BNC | Three Male BNC
3CEXT-xx
RGB video through 250 feet, RG59
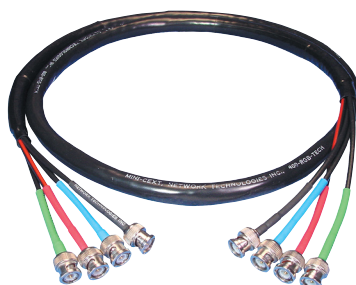
Four Male BNC | Four Male BNC
4CEXT-xx
RGBS video through 250 feet, RG59

Five Male BNC | Five Male BNC
5CEXT-xx
RGBHV video through 250 feet, RG59

Coax Cable Construction & Specifications

NTI's video cables extend your display possibilities with guaranteed 1900x1200 resolution through 250 feet. Their superior construction allows these cables to deliver crisp and clear high-resolution video without booster boxes. To help customers find the perfect solution to meet their application and budget needs, NTI offers three varieties of cables: **Multi-Minicoax Cable, Multi-RG59 Cable,** and **Discreet-Coax Cable**.

CONSTRUCTION OF A COAX CABLE

Insulating Jacket
Insulator
OD
Center Conductor
Braided Shield

Coax Type	Outside Diameter (OD in Inches)
Multi-Minicoax	0.35
Multi-RG59	0.65
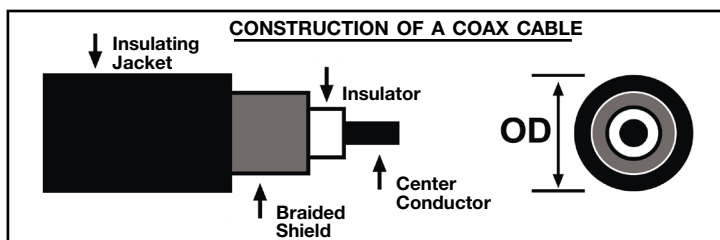
Multi-Minicoax Cables are made with three mini coax cables and nine wires molded under one jacket. Available as fully molded cables from 3 through 100 feet. Supports 1900x1200 resolution through 50 feet.

Multi-RG59 Cables are made with three RG59 coax and four pairs under one jacket with hand assembled ends. Custom made up to 250 feet for standard VGA*. Supports 1900x1200 resolution through 125 feet.

Attenuation–Multi-Minicoax Cable

Freq. MHz	Nom. Attenuation (dB/100ft)	Nom. Attenuation (dB/100m)
1.0	0.66	2.16
5.0	1.72	5.64
10.0	2.49	8.17
30.0	4.13	13.55
50.0	5.24	17.19
100.0	7.78	25.52
130.0	8.99	29.49
150.0	9.75	31.98
200.0	11.76	38.57
230.0	12.82	42.05
250.0	13.64	44.74
300.0	15.07	49.43

Attenuation–Multi-RG59 Cable

Freq. MHz	Nom. Attenuation (dB/100ft)	Nom. Attenuation (dB/100m)
1.0	0.36	1.18
5.0	0.96	3.15
10.0	1.24	4.07
30.0	1.96	6.43
50.0	2.43	7.97
100.0	3.27	10.73
130.0	3.68	12.07
150.0	4.02	13.19
200.0	4.45	14.60
230.0	4.79	15.71
250.0	5.16	16.92
300.0	5.77	18.93

* Standard VGA video is 640x350, 640x400 or 640x480 resolution.

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APPLICATION NOTES

Combine NTI's switches and splitters for complex applications

Local KVM Switching and Remote Video Presentation Display

Two behind the scenes technicians can create and update information from two shared computers connected to an NTI KVM Matrix Switch with a local keyboard, monitor and mouse, while a presenter can display any computer's output to any monitor/projector. Video switching is controlled from a PC connected remotely via the Web server.

- CAT5 Video Matrix Switches
  - Pages 42 to 45
- VGA Extenders
  - Pages 4 to 5
- VGA Video Splitters
  - Pages 90 to 91
- SUN PC KVM Matrix Switches
  - Page 61

ST-C5V-600 (Remote Units)
ST-2X2-UDT (2 users by 2 computers)
VEEMUX SM-nXm-C5AV-LCD
VOPEX-2V-H
ST-C5V-600 (Local Units)
ST-C5V-600 (Local Units)
INTERNET or INTRANET
ETHERNET
Remote Video Switching via Web Server
PC SUN MAC
LAPTOP
DIGITAL SIGNAGE

= CAT5 CABLE (Up to 600 feet)
= VEXT-xx-MM
= VKTINT-1
= VKTINT-xx-MM
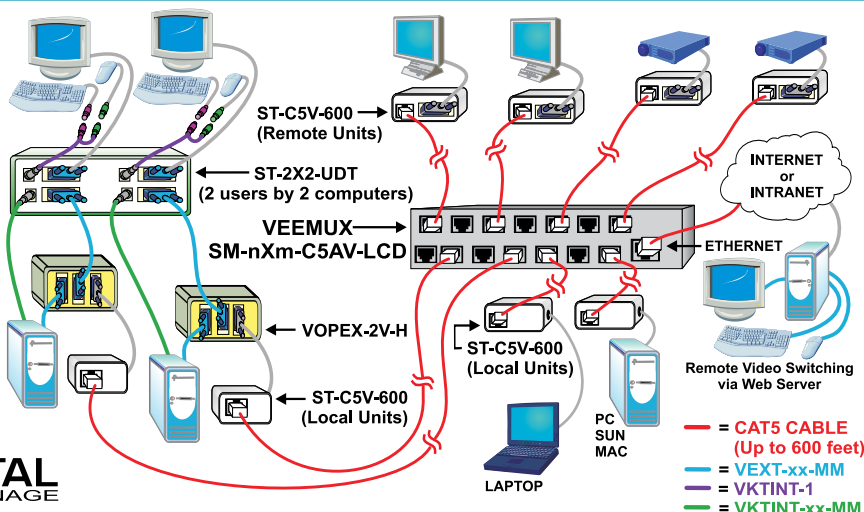
Interconnect Multiple Servers at Different Locations

Connect servers physically located in different locations throughout a building to a maximum distance of 1,000 feet.

- VGA KVM Switch via CAT5
  - Pages 56 to 57

Surveillance Servers
CAT5 Cable
Manager's Desk
PRIMUX-UZR User Station
Marketing Server Rack
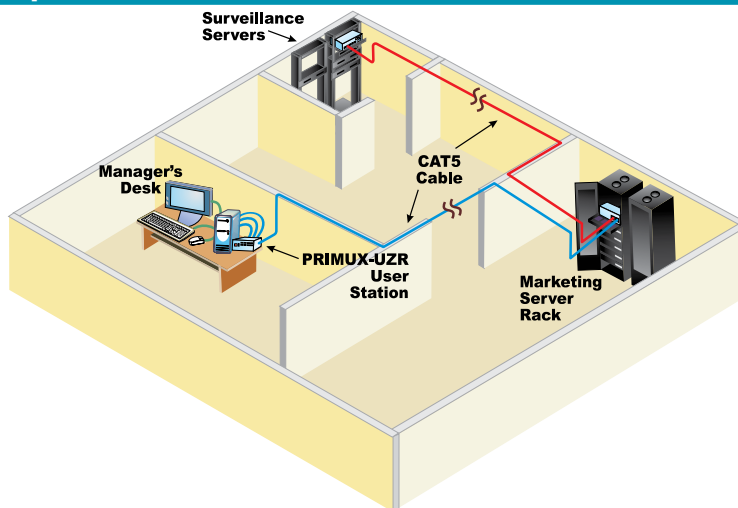
KVM Switching with Added Security of CAC Reader

CAC / Smart Card readers provide an additional level of authentication to create a more secure infrastructure. To comply with Homeland Security and DoD guidelines, or for added security, connect a CAC reader to the High Density USB KVM Matrix Switch using the optional USB connector.

- High Density VGA USB KVM Matrix Switches
  - Pages 52 to 53
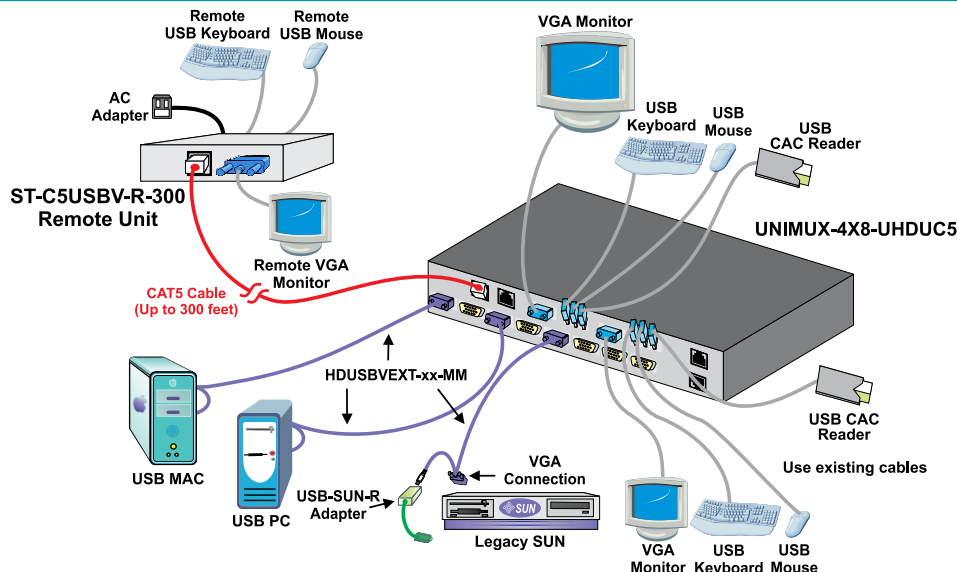
Remote USB Keyboard
Remote USB Mouse
VGA Monitor
AC Adapter
USB Keyboard
USB Mouse
USB CAC Reader
ST-C5USBV-R-300 Remote Unit
UNIMUX-4X8-UHDUC5
Remote VGA Monitor
CAT5 Cable (Up to 300 feet)
HDUSBVEXT-xx-MM
USB CAC Reader
Use existing cables
USB MAC
VGA Connection
USB PC
USB-SUN-R Adapter
Legacy SUN
VGA Monitor
USB Keyboard
USB Mouse

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APPLICATION NOTES

Combine NTI's switches and splitters for complex applications

Cascade Multiple Quad Screen Splitters to Connect up to 16 Video Sources to 1 Display

Display video from up to 16 video sources simultaneously on one touch screen monitor by cascading SPLITMUX® Quad Screen Splitters. With all of the Quad Screen Splitters in Quad Mode, a master splitter connects to four slave splitters, with each slave splitter connecting to four DVI video sources.

- DVI/VGA Quad Screen Multiviewer/Splitter
  - Pages 84 to 85

Touch Screen Display

Suggested video resolution of display:
1920x1200 or 1920x1080
Aspect Ratio: 16:10 or 16:9

= USB2-AB-xM-color
= DVI-IS-xx-MM

SPLITMUX-DVI-4 Master
Display Mode: Quad

Suggested video resolution at output to display:
1920x1200@60Hz or 1920x1080@60Hz

Slave 4 Display Mode: Quad
Slave 1 Display Mode: Quad

PC16 PC15 PC14 PC13   PC4 PC3 PC2 PC1

Suggested video resolution at output to Master:
1280x1024@60Hz

Slave 3 Display Mode: Quad
Slave 2 Display Mode: Quad

Suggested video resolution on each PC:
1280x1024@85Hz
Aspect Ratio: 5:4

PC12 PC11 PC10 PC9   PC8 PC7 PC6 PC5

Alert Notifications Sent for Critical Server Environmental Conditions

Be notified about potential problems in your server room via email, LEDs, web page, network management (SNMP), voice phone calls (via Automatic Voice Dialer System), and SMS messages (via external GSM modem).

- Server Environment Monitoring System
  - Pages 72 to 78

Automatic Voice Dialer System → Voice Telephone Alerts

SENSORS
RJ45 Sensors (Temperature/Humidity)
Output Relays
Digital Inputs

GSM Modem → SMS Alerts

ENVIROMUX-SEMS-16

TCP/IP

Internet

SMNP Traps

Network Management Station

Email Alerts

Web-based Remote Monitoring

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Combine NTI's switches and splitters for complex applications

Detect Conductive Liquids in a Server Room

The ENVIROMUX-LDSx-y water sensor cable is available in lengths from 1 to 1000 feet, and can be located up to 100 feet away from the sensor unit via 2-wire cable. The sensor unit can be located up to 1,000 feet away from the ENVIROMUX-SEMS-16 via CAT5/5e/6 cable. If water or other conductive liquid contacts the water sensor cable, the ENVIROMUX-LDSx-y reports the detection to the ENVIROMUX-SEMS-16.

- Server Environment Monitoring System
  - Pages 72 to 78
- Liquid Detection Sensor
  - Page 75

ENVIROMUX-LDSx-y Sensor Unit

= Water Sensor Cable (x) up to 1,000 feet
= 2-Wire Cable (y) up to 100 feet
= CAT5 Cable to 1,000 feet

ENVIROMUX-SEMS-16
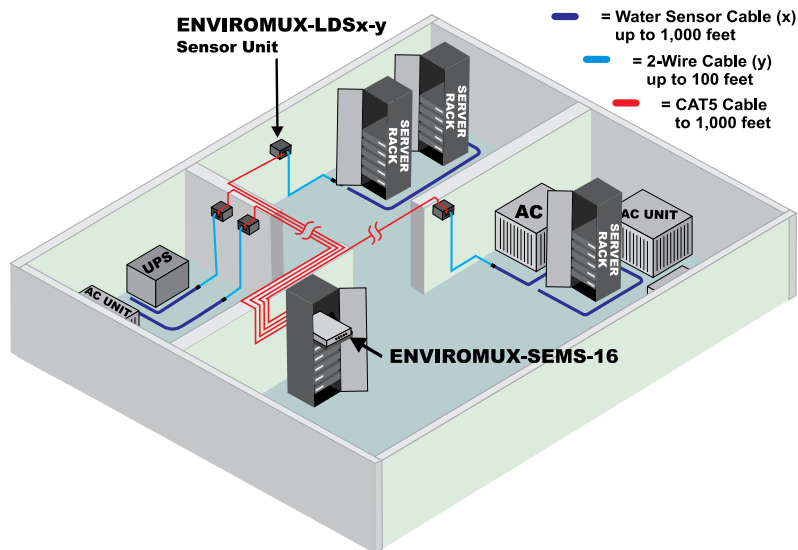
Measure Air Velocity in a Server Room

The ENVIROMUX-AV is a reliable sensor for measurement of air velocity. Up to two air velocity sensors can be connected to the ENVIROMUX-S5VDC sensor converter box. The ENVIROMUX-S5VDC can be located up to 1,000 feet away from the ENVIROMUX-SEMS-16 via CAT5/5e/6 cable.

- Server Environment Monitoring System
  - Pages 72 to 78
- Air Velocity Sensor
  - Page 75

= CAT5/5e/6 Cable up to 1,000 feet

ENVIROMUX-AV Detects air velocity through air filter

ENVIROMUX-S5VDC

Air Filter

Server Cabinet Exhaust Fan

ENVIROMUX-AV Detects air flow

ENVIROMUX-SEMS-16

ENVIROMUX-AV Detects blockage

ENVIROMUX-S5VDC
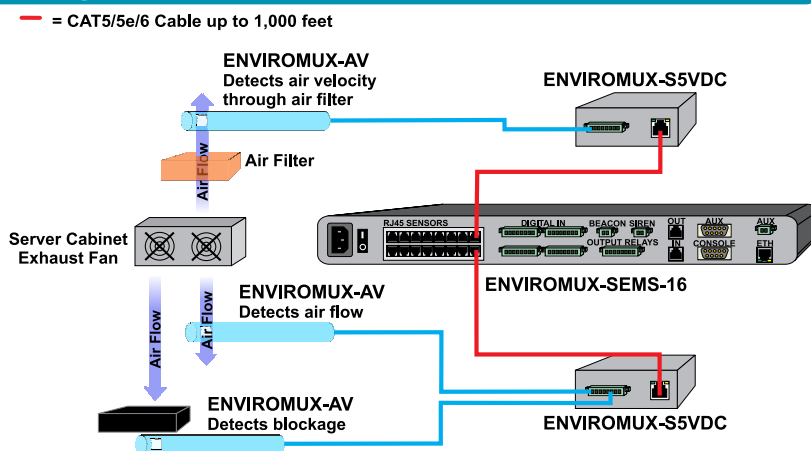
Power the Mini Server Environment Monitoring System over Ethernet

The ENVIROMUX-POE Power Over Ethernet Adapter eliminates the need to place ethernet-enabled devices near power outlets, giving more freedom of placement. Using the ENVIROMUX-POE, the ENVIROMUX™ Mini Server Environment Monitoring System can be located up to 300 feet away from a Power Over Ethernet (PoE) switch.

- Mini Server Environment Monitoring System
  - Pages 79 to 81
- Power over Ethernet Adapter
  - Page 81

INTERNET

Router

PoE Switch

Temperature Humidity Liquid Detection Door Contact Liquid Detection

Power

Fault RS232 Ethernet

ENVIROMUX-MINI

ENVIROMUX-POE
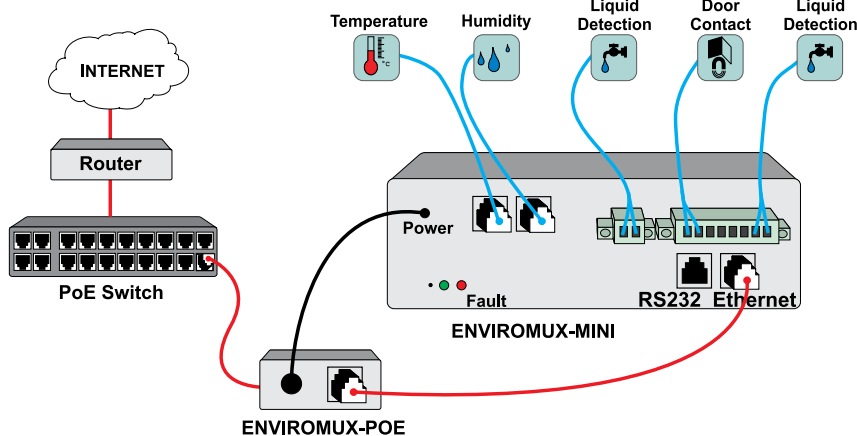
APPLICATION NOTES

Combine NTI's switches and splitters for complex applications

Drive up to 40 Displays with 1 DVI Video Source

Cascade video splitters to display the same crisp and clear high-resolution image on a maximum of 40 monitors.

■ DVI Video Splitters
   • Page 89

VOPEX-DVI-4

DVI PC

DVI-IS-xx-MM   DVI-IS-xx-MM   DVI-IS-xx-MM

VOPEX-DVI-4   VOPEX-DVI-4   VOPEX-DVI-4   VOPEX-DVI-4

← USE EXISTING CABLES →   ← USE EXISTING CABLES →   ← USE EXISTING CABLES →

DIGITAL SIGNAGE
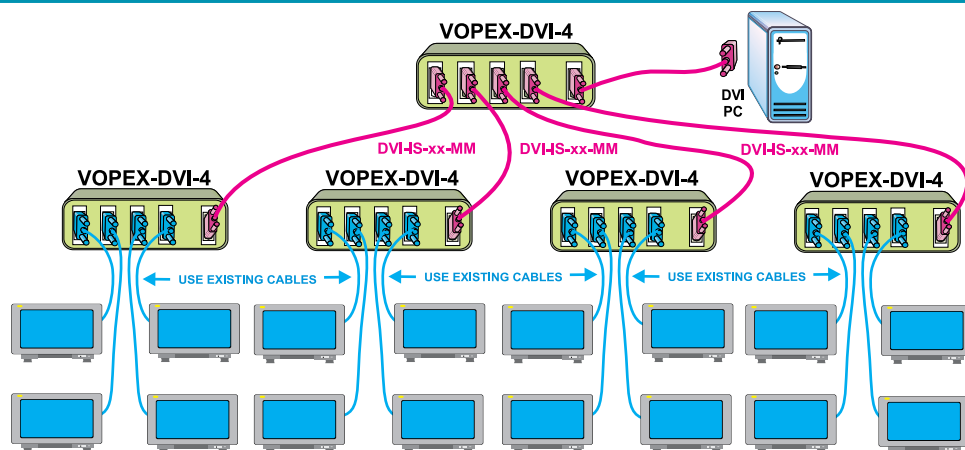
Two Users with Touch Screen Monitors Access 1 USB Computer

The VOPEX-USBV-2 USB KVM Splitter with built-in USB hub allows two users with USB touch screen monitors, USB keyboards, and USB mice to access one USB computer and two USB devices (printer, scanner, security camera, etc.). Connect the USB touch screen monitor into one of the USB hub ports and into one of the VGA monitor output ports of the splitter.

■ USB KVM Splitter
   • Page 88

USB Touch Screen Monitor

VEXT-3 (Supplied)

VOPEX-USBV-2

AC Adapter

USB-AB-1M (Supplied)

USB Peripheral Devices

USB CPU
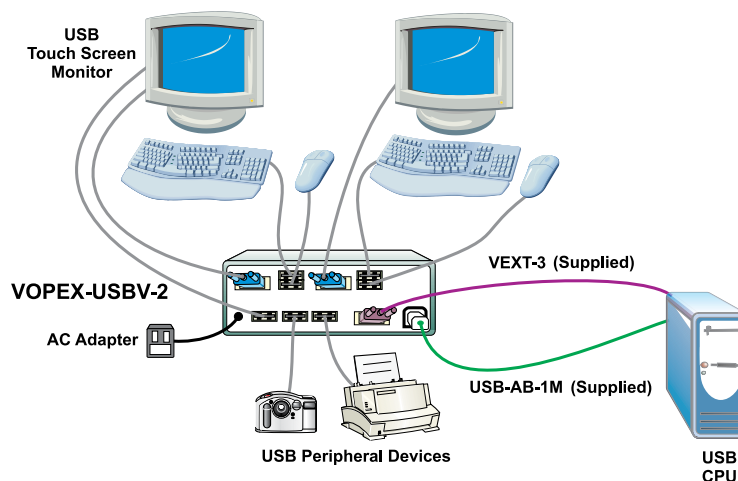
Dual Redundant Secure Access to Serial Ports

To gain dual redundant secure access to the serial ports of servers, begin by connecting a server to the console port of the SERIMUX-CS-xx Console Switch. Next, configure a serial port on the SERIMUX-CS-xx to a user port and connect an additional server to that port. Use Secure Shell to access one of the servers connected to the internet. Then, using a terminal program such as minicom, tip or cu, access the console switch. Log in to the SERIMUX-CS-xx to access any of the serial management ports of the servers.

■ Console Switches
   • Pages 96 to 98

Server 1   Server 2   Server 3   Server 4

Console

User Port   SERIMUX-CS-16DP

SUN Server

Network A

Router

INTERNET

Network B

Router

UNIX Server

Remote Management Station

── = Serial Connection
── = Network

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APPLICATION NOTES

Cable pinout guide
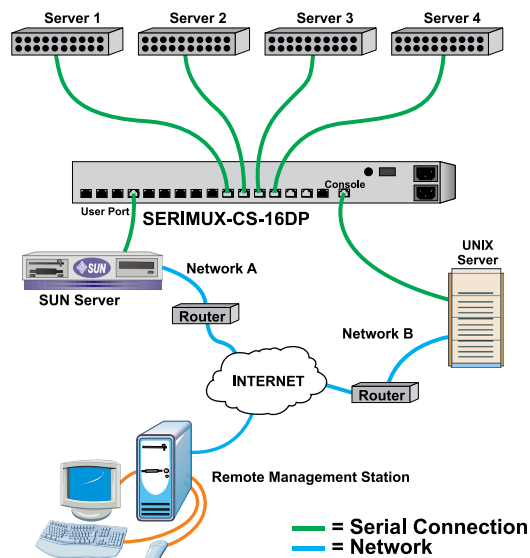
PS/2 KEYBOARD OR MOUSE
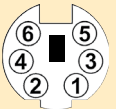
Mating face of
6-pin miniDIN female

PIN#	SIGNAL
1	DATA
2	NC
3	GND
4	+5
5	CLOCK
6	NC

VGA VIDEO WITH DDC

Mating face of 15-pin HD male

PIN#	SIGNAL	PIN#	SIGNAL
1	RED	9	NC
2	GREEN	10	SYNC RTN
3	BLUE	11	ID0
4	ID2	12	ID1 or DDC DATA
5	GND	13	HSYNC
6	RED SHLD	14	VSYNC
7	GREEN SHLD	15	ID3 or DDC CLOCK
8	BLUE SHLD		

DVI

Mating face of DVI female

PIN#	SIGNAL	PIN#	SIGNAL
1	TMDS DATA 2 -	16	HOT PLUG DETECT
2	TMDS DATA 2 +	17	TMDS DATA 0 -
3	TMDS DATA 2/4 SHIELD	18	TMDS DATA 0 +
4	TMDS DATA 4 -	19	TMDS DATA 0/5 SHIELD
5	TMDS DATA 4 +	20	TMDS DATA 5 -
6	DDC CLOCK	21	TMDS DATA 5 +
7	DDC DATA	22	TMDS CLOCK SHIELD
8	ANALOG VERT. SYNC	23	TMDS CLOCK +
9	TMDS DATA 1 -	24	TMDS CLOCK -
10	TMDS DATA 1 +		
11	TMDS DATA 1/3 SHIELD	C1	ANALOG RED
12	TMDS DATA3-	C2	ANALOG GREEN
13	TMDS DATA3+	C3	ANALOG BLUE
14	+5V POWER	C4	ANALOG HORZ. SYNC
15	GND	C5	ANALOG GROUND

COMPONENT VIDEO (Y Pb Pr)

Female RCA

	Green	Blue	Red
	Y	Pb (B-Y)	Pr (R-Y)
	Tip=Y	Tip=Pb	Tip=Pr
	Shield=GND	Shield=GND	Shield=GND

SUN KEYBOARD & MOUSE

Mating face of
8-pin miniDIN female

PIN#	SIGNAL
1	GND
2	GND
3	+5
4	MOUSE
5	KYBD RCV
6	KYBD XMT
7	PWRN
8	+5

SUN VIDEO

Mating face 13W3 female

PIN#	SIGNAL	PIN#	SIGNAL	PIN#	SIGNAL
1	GND	6	HSYNC	A1	RED
2	VSYNC	7	GND	A2	GREEN
3	ID2	8	ID1	A3	BLUE
4	GND	9	ID0		
5	CSYNC	10	GND		
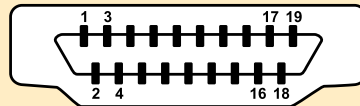
HDMI

Mating face of HDMI Type-A male

PIN#	SIGNAL	PIN#	SIGNAL
1	TMDS Data2+	11	TMDS Clock Shield
2	TMDS Data2+ Shield	12	TMDS Clock-
3	TMDS Data2-	13	CEC (not used)
4	TMDS Data1+	14	Reserved (N.C. on device)
5	TMDS Data1 Shield	15	SCL
6	TMDS Data1-	16	SDA
7	TMDS Data0+	17	DDC/CEC Ground
8	TMDS Data0 Shield	18	+5V Power
9	TMDS Data0-	19	Hot Plug Detect
10	TMDS Clock+		

DIGITAL AUDIO

Female RCA

Orange

NAME	SIGNAL
Tip	S/PDIF
Shield	GND

DISPLAYPORT

Mating face of source-side
DisplayPort connector

PIN#	SIGNAL	PIN#	SIGNAL
1	Lane 0 +	11	Ground
2	Ground	12	Lane 3 -
3	Lane 0 -	13	Connected to Ground
4	Lane 1 +	14	Connected to Ground
5	Ground	15	Auxiliary Channel +
6	Lane 1 -	16	Ground
7	Lane 2 +	17	Auxiliary Channel -
8	Ground	18	Hot Plug Detect
9	Lane 2 -	19	Return for Power
10	Lane 3 +	20	Power for Connector

MAC VIDEO

Mating face of 15D male

PIN#	SIGNAL	PIN#	SIGNAL
1	GND	9	BLUE
2	RED	10	ID3
3	CSYNC	11	GND
4	ID1	12	VS
5	GREEN	13	GND
6	GND	14	GND
7	ID2	15	HS
8	NC		

S-VIDEO

Mating face of
4-pin miniDIN male

PIN#	SIGNAL
1	GND_Y
2	GND_C
3	LUMINANCE_Y
4	CROMINANCE_C

RCA

Male RCA

Tip

Shield

NAME	SIGNAL
Tip	Signal
Shield	GND

TECHNICAL NOTES

www.networktechinc.com/technote.html

TECHNICAL NOTES

Cable pinout guide

3.5mm PLUG

3.5mm stereo audio pinout

Sleeve Ring Tip

NAME	SIGNAL
Sleeve	GROUND
Ring	RIGHT AUDIO
Tip	LEFT AUDIO

UNIVERSAL SERIAL BUS

Type A	Type B
Mating face of USB Type A female	Mating face of USB Type B female

PIN#	SIGNAL
1	+5
2	-DATA
3	+DATA
4	GND

IEEE 1394a

Mating face of 4 pin male firewire

PIN#	SIGNAL
1	TPB-
2	TPB+
3	TPA-
4	TPA+

IEEE 1394a

Mating face of 6 pin male firewire

PIN#	SIGNAL
1	POWER
2	GND
3	TPB-
4	TPB+
5	TPA-
6	TPA+

IEEE 1394b

Mating face of 9 pin male firewire

PIN#	SIGNAL
1	TPB-
2	TPB+
3	TPA-
4	TPA+
5	A SHIELD
6	GND
7	N/C
8	POWER
9	B SHIELD

RS232 DB9 INTERFACE

Mating face of male RS232 DB9 (9-pin D)

PIN#	SIGNAL
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

RS232 RJ45 INTERFACE

Mating face of female RS232 RJ45

PIN#	SIGNAL	PIN#	SIGNAL
1	RTS	5	GND
2	DTS	6	RXD
3	TXD	7	DSR
4	GND	8	CTS

RS232 DB25 INTERFACE

Mating face of male RS232 DB25

PIN#	SIGNAL	PIN#	SIGNAL
1	N/A	14	N/A
2	TXD	15	N/A
3	RXD	16	N/A
4	RTS	17	N/A
5	CTS	18	N/A
6	DSR	19	N/A
7	GND	20	DTR
8	DCD	21	N/A
9	N/A	22	RI
10	N/A	23	N/A
11	N/A	24	N/A
12	N/A	25	N/A
13	N/A		

Orange Pair 2
Green Pair 3   Blue Pair 1   Brown Pair 4

RJ-45 Jack
TIA/EIA 568A Standard

Green Pair 3
Orange Pair 2   Blue Pair 1   Brown Pair 4

RJ-45 Jack
TIA/EIA 568B Standard

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