

SSH Console Serial Switch with Environmental Monitoring

SERIMUX®

Securely control up to 32 RS232 devices via the Internet

- Operates on a 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 1000 feet (305 meters).
- Dual Ethernet and optional dual power provide redundant connectivity and power.
- USB port provides expanded logging storage, configuration export and additional functionality.
- Dual power option creates a redundant power system protecting the console switch from any power failure issues.
- 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.
- Enhanced security features to protect the system - Secure Shell (SSH v2), individual port authentication, HTTPS.
- Switching is simplified with programmable device names and menu-driven device selection.
 - All configuration parameters are stored in non-volatile memory.
 - Configuration parameters can be imported from USB Flash drive.
- Firmware upgradeable "in-field" through console port, Ethernet, or an attached USB Flash drive.
- 1RU case is standard. Includes rack mounting kit.



SERIMUX-S-16DP (Front & Back)

- Linux Inside
- IPV6 Compatible

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.

Control Methods

- HTTP/HTTPS Web Interface, Telnet/SSH, System console.
 - To connect to the SERIMUX ports via the web interface, install any version of Java 7. Note: this feature is not compatible with Java 8.
- Supports up to 32 users.
- Two user levels: 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.

Security

- Local DB authentication
- TLS/SSL secure communications
- SSH v1, SSH v2, SSL
- AES, 3DES/DES, Blowfish, Twofish, RSA, EDH-RSA, Arcfour Encryptions

Specifications

Compatibility

- Supports most devices with an RS232 serial port
- Supports VT terminals

Network Interface

- Two 10/100 Base-T Ethernet ports with RJ45 Ethernet connector
- Supports both static and dynamic IP addresses

RJ45 Sensor Ports

- Two RJ45 modular jacks for connecting NTI temperature/humidity and liquid detection sensors.

Serial Interface

- 4/8/16/24/32 RJ45 EIA-232 serial port connectors
- One RJ45 EIA-232 console port connector
- Each individual serial port is fully configurable-
 - All industry-standard baud rates ranging from 50 up to 115.2kbps
 - RTS/CTS, Xon/Xoff or both handshaking schemes
 - Variable character widths- 5, 6, 7, or 8 bits
 - Stop bits - 1 or 2, as well as Parity- Odd, Even and None
- Flow Control:
 - Hardware RTS/CTS
 - Software XON/XOFF
- Signals: RS232 CTS, DSR, RXD, GND, DCD, TXD, DTR, RTS
- Modem control: DTR/DSR and RTS/CTS
- Data transfer rate: up to 115.2K baud between two ports
 - Two ports can be at different baud rates

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Specifications (continued)

Power

- Input Voltage: AC 100 to 240 V, 50 to 60 Hz (Country-specific power supply cable included.)
- Optional 48 V DC power
- Optional dual AC power or dual DC power available on all models

Power Consumption			
NTI Part #	Power (W)	NTI Part #	Power (W)
SERIMUX-S-4	10	SERIMUX-S-24	15
SERIMUX-S-8	10	SERIMUX-S-32	15
SERIMUX-S-16	15		

Adapters

- Four cable adapters are included with the SERIMUX
 - Male DB-25F to female RJ45
 - Female DB-9F to female RJ45
 - Female DB-25M to female RJ45
 - Male DB-25M to female RJ45
- Additional adapters can be purchased.

Protocols

- SSH V2, Telnet
- IPV4, IPV6
- TCP/IP, TFTP, DHCP, ICMP, UDP, ARP
- HTTP, HTTPS, SMTP, SNMP V1/V2c, Syslog, SNTIP
- IPMI v2, RMCP
- 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.

Internal Sensors

- Temperature:
 - Applications from 32 to 104°F (0 to 40°C).
 - Accurate to within ±1.35°F (±0.75°C).
- Fan:
 - Ability to monitor internal fan speed (24- and 32-port models only)

Memory

- 32 MB 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.

Dimensions:

- 4-, 8- and 16-port switches WxDxH (in):
 - 16.20x9.00x1.75 (without supplied rack ears kit)
 - 19x9.00x1.75(with supplied rack ears kit)
- 24- and 32-port switches WxDxH (in):
 - 17.40x10.00x1.75 (without supplied rack ears kit)
 - 19x10.00x1.75 (with supplied rack ears kit)

Regulatory Approvals

- CE, RoHS

Environmental

- Operating temperature: 32 to 104°F (0 to 40°C)
- Storage temperature: -20 to 140°F (-30 to 60°C)
- Operating and Storage Relative Humidity: 17 to 90% non-condensing RH

Warranty

- Two years

MTBF

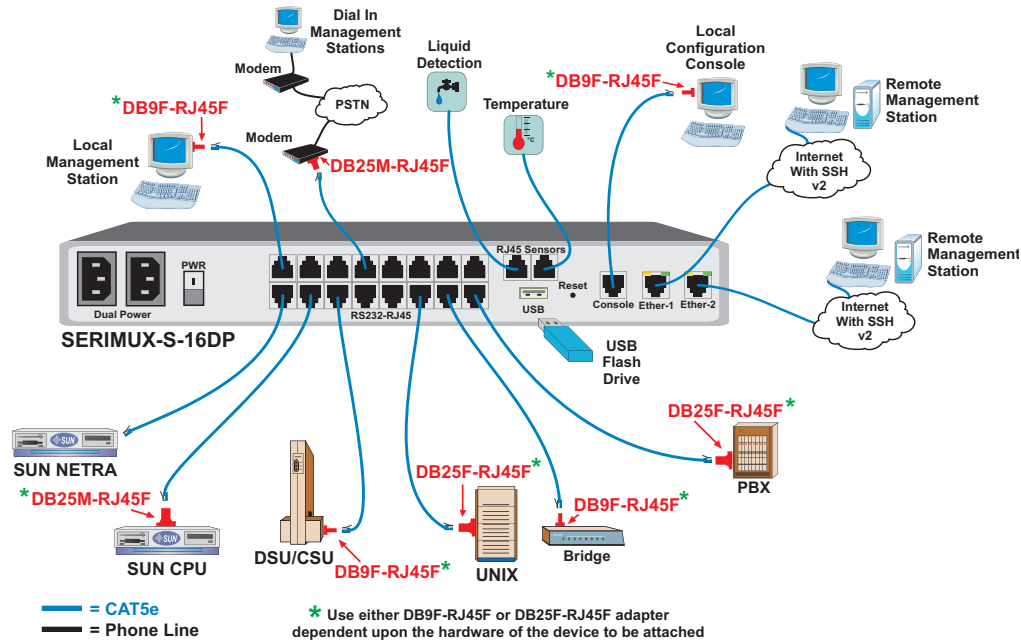
NTI Part #	Hours	NTI Part #	Hours
SERIMUX-4	46,899	SERIMUX-16-48V	33,524
SERIMUX-4DP	111,676	SERIMUX-16-48VDP	100,385
SERIMUX-4-48V	34,695	SERIMUX-24	42,980
SERIMUX-4-48VDP	111,677	SERIMUX-24DP	91,754
SERIMUX-8	43,306	SERIMUX-24-48V	32,503
SERIMUX-8DP	108,371	SERIMUX-24-48VDP	91,755
SERIMUX-8-48V	34,370	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

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Configuration and Cable Illustration



Sensors

Temperature, Humidity & Combination Sensor



ENVIROMUX-STX
ENVIROMUX-STHSB
ENVIROMUX-STHS-99

- Temperature Sensor (ENVIROMUX-STX)
 - Applications from 32°F to 122°F (0° to 50°C).
 - Accurate to within $\pm 0.9^\circ\text{F}$ ($\pm 0.5^\circ\text{C}$).
- Temperature/Humidity Sensor (ENVIROMUX-STHSB)
 - Applications from -4 to 185°F (-20 to 85°C) and 0 to 90% relative humidity.
- Temperature accuracy:
 - ◆ $\pm 0.90^\circ\text{F}$ ($\pm 0.50^\circ\text{C}$) for -4 to 14°F (-20 to -10°C).
 - ◆ $\pm 0.72^\circ\text{F}$ ($\pm 0.40^\circ\text{C}$) for 14 to 185°F (-10 to 85°C).
- Humidity accuracy:
 - ◆ 0 to 80% relative humidity, $\pm 3\%$
 - ◆ 80 to 90% relative humidity, $\pm 4\%$
- Temperature/Wide Range Humidity Sensor (ENVIROMUX-STHS-99)
 - Applications from 32 to 176°F (0 to 80°C)
 - Accurate to within $\pm 2^\circ\text{F}$ (0 to 50°C, $\pm 1^\circ\text{C}$)
 - ◆ 20 to 80% relative humidity, $\pm 3\%$
 - ◆ 10 to 90% relative humidity, $\pm 4\%$
 - ◆ 0 to 99% relative humidity, $\pm 5\%$
- 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

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Adapters



DB9F-RJ45F

- Adapter to connect DB-9M serial ports to the SERIMUX.



DB25F-RJ45F

- Adapter to connect DB-25M serial ports to the SERIMUX.



DB25M-RJ45F-C

- Adapter to connect a modem to the SERIMUX.



DB25M-RJ45F-T

- Adapter to connect DB-25F serial ports to the SERIMUX.



RJ45MF-RS232-CO

- Serial RS232 Crossover using RJ45 connectors (Male to Female)
- Connects: (DTE to DTE) or (DCE to DCE)
- 8P8C

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.

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 Environmental 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)