# IOLAN STS Rack

## Serial to Ethernet Terminal Server

- 4, 8, 16 or 24 serial RS232 on RJ45 Ports
- 10/100/1000 Ethernet
- AC power or 48v DC power models
- Advanced security feature set

Engineers and Project Managers that require a cost effective **serial RS232-to-Ethernet** 1U rack solution that maintains serial device protocol integrity across Ethernet must consider the IOLAN STS Rack. Having the highest performance processor available along with Perle's unique TrueSerial™ technology, the IOLAN STS Rack will provide the most authentic serial connections across Ethernet.

## IOLAN STS Terminal Servers are ideal for

- Engineers and Project Managers requiring a high performance serial to Ethernet interface for 4 to 24 serial RS232 based devices. Connect to serial based applications over Ethernet
- IT Professionals requiring a cost-effective **terminal server** or serial **console server** for out of band management of IT equipment located in smaller data centers or remote sites

## Why IOLAN STS Terminal Servers are the preferred choice:

- High performance 400 MHz, 750 MIPS, 32 bit processor with integrated hardware encryption processor for the best throughput
- Next Generation IP support (IPv6) for investment protection and network compatibility
- TrueSerial™ packet technology – the most authentic serial connections across Ethernet ensures serial protocol integrity
- Primary/Backup host functionality enables automatic connections to alternate hosts should the primary TCP connection go down
- EasyPort Web – Access equipment serial console ports by using your java-enabled Internet browser
- TruePort – Perle's com/tty redirector for serial based applications operates on Windows, Vista, Linux, Solaris, SCO and Unix
- Clustering – Provides a single view of all out of band console ports. Ideal for large data centers
- FIPS 140-2 – Cryptographic modules meet US Government NIST compliancy
- Dynamic DNS – Easy console management access from anywhere on the Internet 4, 8, 16 or 24 serial RS232 on RJ45 Ports
- Intelligent Power cycling of equipment with Perle Remote Power Switches
- Java-free browser access to remote serial console ports via Telnet and SSH

- Ping watchdog probes enable customers to power cycle equipment with attached Perle RPS power switches in the event of an unresponsive networking gear
- Lifetime warranty – best investment protection available

## Software Features - IOLAN STS Terminal Servers

### Serial Port Access

Connect directly using Telnet / SSH by port and IP address

Connect with EasyPort menu by Telnet / SSH

Use an internet browser to access with HTTP or secure HTTPS via EasyPort Web menu

Java-free browser access to remote serial console ports via Telnet and SSH

Ports can be assigned a specific IP address ( aliasing )

Multisession capability enables multiple users to access ports simultaneously

Multihost access enables multiple hosts/servers to share serial ports

### Accessibility

In-band ( Ethernet ) and out-of-band ( dial-up modem ) support

Dynamic DNS enables users to find a console server from anywhere on the Internet

Domain name control through DHCP option 81

IPV6 and IPV4 addressing support

### Availability

Primary/Backup host functionality enables automatic connections to alternate host(s)

### Security

SSH v1 and v2

PCI DSS Compliance: TLS v1.2, TLS v1.1, TLS v1.0, SSL v3.0, SSL v2.0

SSL Server and SSL client mode capability

SSL Peer authentication

IPSec VPN : NAT Traversal, ESP authentication protocol

SSH ciphers: AES-CTR, AES-GCM and ChaCha20-poly1305

SSL encryption: AES-GCM, key exchange ECDH-ECDSA, HMAC SHA256, SHA384

Encryption: AES (256/192/128), 3DES, DES, Blowfish, CAST128, ARCFOUR(RC4), ARCTWO(RC2)

Hashing Algorithms: MD5, SHA-1, RIPEMD160, SHA1-96, and MD5-96

Key exchange: RSA, EDH-RSA, EDH-DSS, ADH

X.509 Certificate verification: RSA, DSA

Certificate authority (CA) list

Local database

RADIUS Authentication, Authorization and Accounting

TACACS+ Authentication, Authorization and Accounting

LDAP, NIS, Kerberos Authentication

RSA SecureID-agent or via RADIUS Authentication

SNMP v3 Authentication and Encryption support

IP Address filtering

Disable unused daemons

Active Directory via LDAP

**Terminal Server**

Telnet

SSH v1 and v2

Rlogin

Auto session login

LPD, RCP printer

MOTD - Message of the day

## Serial machine to Ethernet

Tunnel raw serial data across Ethernet - clear or encrypted

Raw serial data over TCP/IP

Raw serial data over UDP

Serial data control of packetized data

Share serial ports with multiple hosts/servers

Virtual modem simulates a modem connection - assign IP address by AT phone number

Virtual modem data can be sent over the Ethernet link with or without SSL encryption

TruePort com/tty redirector for serial based applications on Windows, Linux, Solaris, SCO, HP UX, NCR UNIX and AIX. For a complete list of all the latest drivers click here

TrueSerial packet technology provides the most authentic serial connections across Ethernet ensuring serial protocol integrity

RFC 2217 standard for transport of serial data and RS232 control signals

Customizable or fixed serial baud rates

Plug-ins allow customer or Perle provided plug-ins for special applications

Software Development Kit ( SDK ) available

Serial encapsulation of industrial protocols such as ModBus, DNP3 and IEC-870-5-101

ModBus TCP gateway enables serial Modbus ASCII/RTU device connection to ModBus TCP

Data logging will store serial data received when no active TCP session and forward to network peer once session re-established - 32K bytes circular per port

## Console Management

Sun / Oracle Solaris Break Safe

Local port buffer viewing - 256K bytes per port

| | External port buffering via NFS, encrypted NFS and Syslog |
|---|---|
| | Event notification |
| | Manage AC power of external equipment using Perle RPS power management products |
| | Clustering - central console server enables access ports across multiple console servers |
| | Windows Server 2003/2008 EMS - SAC support GUI access to text-based Special Administrative Console |
| | Ping watchdog probes enable customers to power cycle equipment with attached Perle RPS power switches in the event of an unresponsive networking gear |

**Remote Access**

| | |
|---|---|
| Dial, direct serial | PPP, PAP/CHAP, SLIP |
| | HTTP tunneling enables firewall-safe access to remote serial devices across the internet |
| Automatic DNS Update | Utilize DHCP Opt 81 to set IOLAN domain name for easy name management and with Dynamic DNS support , users on the Internet can access the device server by name without having to know its IP address. See Automatic DNS update support for details |
| IPSEC VPN client/servers | Microsoft L2TP/IPSEC VPN client ( native to Windows XP) |
| | Microsoft IPSEC VPN Client ( native to Windows Vista ) |
| | Cisco routers with IPSEC VPN feature set |
| | Perle IOLAN SDS/STS and SCS models |

**OA&M ( Operations, Administration and Management )**

| | |
|---|---|
| | SNMP V3 - read and write, Perle MIB |
| | Syslog |
| | Perle Device Manager - Windows based utility for large scale deployments |
| | Configurable default configuration |

Installation Wizard

Set a Personalized Factory Default for your IOLANs

**Protocols**

IPv6, IPv4, TCP/IP, Reverse SSH, SSH, SSL, IPSec/IPv4, IPSec/IPv6, L2TP/IPSec, CIDR, RIPV2/MD5, ARP, RARP, UDP, UDP Multicast, ICMP, BOOTP, DHCP, TFTP, SFTP, SNTP, Telnet, raw, reverse Telnet, LPD, RCP, DNS, Dynamic DNS, WINS, HTTP, HTTPS, SMTP, SNMPV3, PPP, PAP/CHAP, SLIP, CSLIP, RFC2217, MSCHAP

# Hardware Specifications - IOLAN STS Serial Terminal Server

|  | IOLAN STS4 | IOLAN STS8 | IOLAN STS16 | IOLAN STS24 |
|---|---|---|---|---|
| Processor | MPC8349E, 400 Mhz, 750 MIPS | | | |
| **Memory** | | | | |
| RAM MB | 32 | 64 | 64 | 128 |
| Flash MB | 16 | 16 | 16 | 16 |
| **Interface Ports** | | | | |
| Number of Serial Ports | 4 | 8 | 16 | 24 |
| Serial Port Interfase | RS232 DTE on RJ45 | | | |
| Sun / Solaris | Sun / Oracle 'Solaris' Safe - no "break signal" sent during power cycle causing costly server re-boots or downtime | | | |
| Serial Port Speeds | 50bps to 230Kbps with customizable baud rate support | | | |
| Data Bits | Configurable for 5,6,7 or 8-bit protocol support Use TruePort to transparently pass 9-bit serial data | | | |
| Parity | Odd, Even, Mark, Space, None | | | |
| Flow Control | Hardware, Software, Both, None | | | |

| | | | | |
|---|---|---|---|---|
| Serial Port Protection | 15Kv Electrostatic Discharge Protection (ESD) | | | |
| Local Console Port | RS232 on RJ45 with DB9 adapter (provided ) | | | |
| Network | 10/100/1000-base TX Ethernet RJ45 | | | |
| | Software selectable Ethernet speed 10/100/1000, Auto | | | |
| | Software selectable Half/Full/Auto duplex | | | |
| Ethernet Isolation | 1.5Kv Magnetic Isolation | | | |

**Power**

| | | | | |
|---|---|---|---|---|
| Power Supply | | | | |
| | USA models | IEC320-C13 to NEMA 5-15P line cord | | |
| | UK models | IEC320-C13 to BS1363 line cord | | |
| | EU models | IEC320-C13 to CEE 7/7 Schuko | | |
| | South Africa Models | IEC320-C13 to BS546 line cord | | |
| | Australia models | IEC320-C13 to AS3112 line cord | | |
| Nominal Input Voltage | 110/230v AC | | | |
| Input Voltage Range | 100-240v AC | | | |
| AC Input Frequency | 47-63Hz | | | |
| Current Consumption @ 100v (Amps) | 0.11 | 0.11 | 0.12 | 0.12 |
| Current Consumption @ 240v (Amps) | 0.05 | 0.05 | 0.06 | 0.06 |

| Typical Power Consumption (Watts) | 11 | 11 | 12 | 12 |
|---|---|---|---|---|

| Power Line Protection | Fast transients: 1 KV (EN61000-4-4 Criteria B) |
|---|---|
| | Surge: 2KV (EN61000-4-5 common mode), 1KV (EN61000-4-5 differential and common modes) |

## Indicators

| LEDs | Power |
|---|---|
| | System Ready |
| | Network Link activity |
| | Serial: Transmit and Receive data per port |

## Environmental Specifications

| Heat Output (BTU/HR) | 38 | 38 | 42 | 42 |
|---|---|---|---|---|

| MTBF (Hours) | 179425 | 174418 | 160992 | 130470 |
|---|---|---|---|---|
| | *Calculation model based on MIL-HDBK-217-FN2 @ 30 °C | | | |

| Operating Temperature | 0C to 55C, 32F to 131F |
|---|---|

| Storage Temperature | -40C to 85C, -40F to 185F |
|---|---|

| Humidity | 5 to 95% (non condensing) for both storage and operation. |
|---|---|

| Ingress Protection Rating | IP30 |
|---|---|

| Mounting | 1U - 19" rack, front and rear mounting hardware included |
|---|---|

## Product Weight and Dimensions

| Weight | 2.8 kg | 3 kg | 3.1 kg | 3.1 kg |
|---|---|---|---|---|

| Dimensions | 1U Rack form factor - 26.4 x 43.4 x 4.4 (cm), 10.38 x 17.1 x 1.75 (in) |
|---|---|

**Packaging**

| Shipping Dimensions | 59 x 36 x 9cm | | | |
|---|---|---|---|---|
| Shipping weight | 3.96 kg | 3.98 kg | 4.0 kg | 4.2 kg |

**Regulatory Approvals**

| Emissions | FCC Part 15, Subpart B, Class A |
|---|---|
| | CFR47:2003, Chapter 1, Part 15 Subpart B,(USA) Class A |
| | ICES-003, Issue 4, February 2004 (Canada) |
| | CISPR 32:2015/EN 55032:2015 (Class A) |
| | EN55011 (CISPR11) |
| | EN61000-3-2 : 2010, Limits for Harmonic Current Emissions |
| | EN61000-3-3 : 2010, Limits of Voltage Fluctuations and Flicker |
| Immunity | CISPR 24:2010/EN 55024:2010 |
| | EN61000-4-2: Electrostatic Discharge |
| | EN61000-4-3: RF Electromagnetic Field Modulated |
| | EN61000-4-4: Fast Transients |
| | EN61000-4-5: Surge |
| | EN61000-4-6: RF Continuous Conducted |
| | EN61000-4-8: Power-Frequency Magnetic Field |
| | EN61000-4-11: Voltage Dips and Voltage Interruptions |
| Safety | IEC 60950-1(ed 2); am1, am2 and EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013 |
| | CAN/CSA-C22.2 No. 60950-1-03 and ANSI/UL 60950-1, First Edition April 1st 2003 (Recognized Component) |

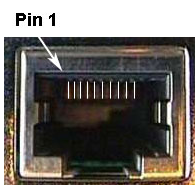| Other | Reach, RoHS and WEEE Compliant |
| --- | --- |
| | Directive 2011/65/EU restriction of the use of certain hazardous substances in electrical and electronic equipment and meets the following standard:: EN 50581:2012 |
| | CCATS - G168387 |
| | ECCN - 5A992 |
| | HTSUS Number: 8471.80.1000 |
| | Perle Limited Lifetime Warranty |

**IOLAN RJ45 Serial Connector Pinout**

| | Pinout | Direction | EIA-232 |
| --- | --- | --- | --- |
| RJ45 Socket | 1 | in | DCD |
| | 2 | out | RTS |
| | 3 | in | DSR |
| | 4 | out | TxD |
| | 5 | in | RxD |
| | 6 | | GND |
| | 7 | in | CTS |
| | 8 | out | DTR |

Optional Perle adapters for use with straight thru CAT5 cabling

**TCP**

**Using RAW TCP Sockets**

A raw TCP socket connection which can be initiated from the serial-Ethernet device or from the remote host/server. This can either be on a point to point or shared basis where a serial device can be shared amongst multiple devices. TCP sessions can be initiated either from the TCP server application or from thePerle IOLAN **serial-Ethernet** adapter.
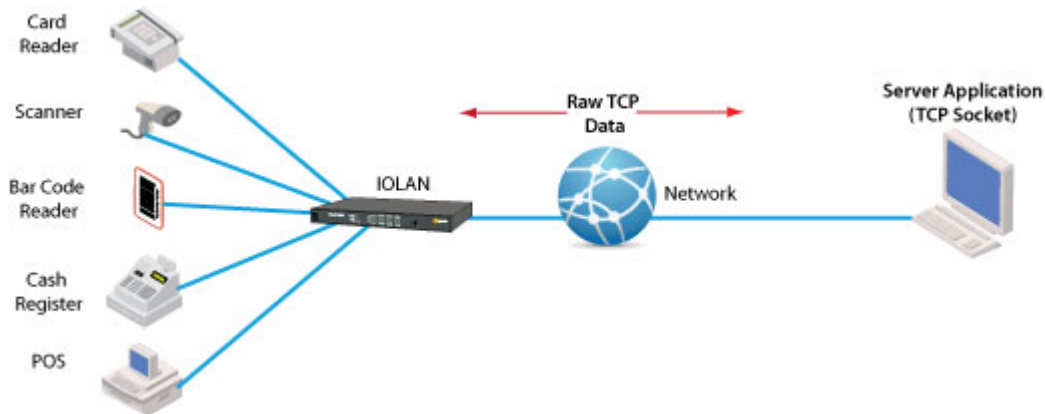


**UDP**

**Using Raw UDP Sockets**

For use with UDP based applications, Perle IOLANs can convert serial equipment data for transport across UDP packets either on a point to point basis or shared across multiple devices.
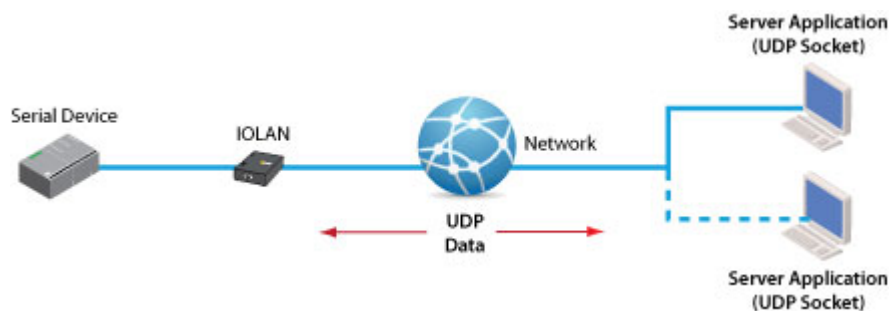


**Console Server**

### Console Management

For access to remote console ports on routers, switches,etc, Perle IOLAN's enable administrators secure access to these RS232 ports via inband Reverse Telnet / SSH or out of band with dial-up modems. Perle IOLAN models with integrated modems are available.
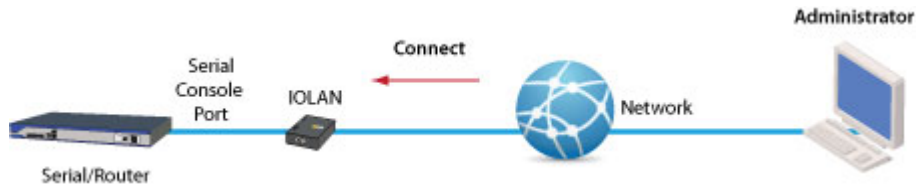


### COM/TTY

### Connect Serial-based Applications with a COM/TTY Port Driver

Serial ports can be connected to network servers or workstations running Perle's TruePort software operating as a virtual COM port. Sessions can be initiated either from the Perle IOLAN or from TruePort.
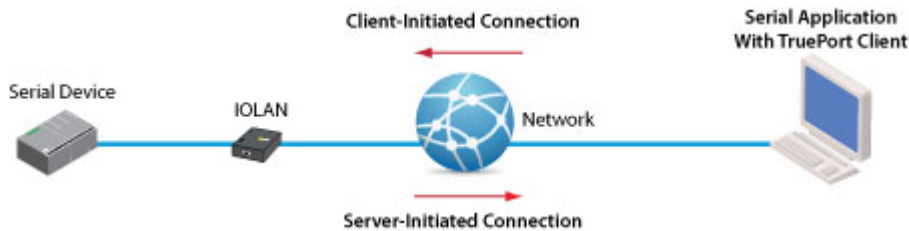


### Tunneling

### Serial Tunneling between two Serial Devices

Serial Tunneling enables you to establish a link across Ethernet to a serial port on another IOLAN. Both IOLAN serial ports must be configured for Serial Tunneling (typically one serial port is configured as a Tunnel Server and the other serial port as a Tunnel Client).



### Virtual Modem

**Virtual Modem**

Enables the serial-Ethernet adapter to simulate a modem connection. When connected to the IOLAN and initiates a modem connection, the IOLAN starts up a TCP connection to another IOLAN serial-Ethernet adapter configured with a Virtual Modem serial port or to a host running a TCP application.