

# IOLAN DS1 and TS2

 [perle.com/products/iolan-ds-terminal-server.shtml](http://perle.com/products/iolan-ds-terminal-server.shtml)

## Serial to Ethernet Device Servers

- 1 or 2 serial Ports
- Software selectable RS232/422/485 or fixed RS232 serial port interface
- 10/100 or 10/100/1000 Ethernet
- Extended temperature model available



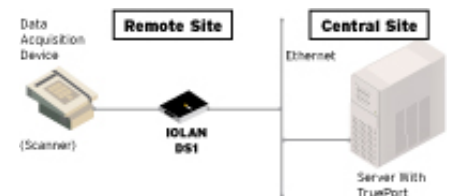
The **IOLAN DS/TS Device Server** is the best choice for simple **serial to Ethernet** connectivity applications. Delivering a cost effective solution in a compact size, the IOLAN DS/TS offers flexibility and advanced [TrueSerial®](#) technology making it ideal for applications that require an authentic serial connection across an Ethernet network. **IOLAN DS1 Device Servers** are also available with support for [Extended Temperature Ranges](#).

### Features and Benefits

- [TrueSerial®](#) delivers the most authentic serial connections across Ethernet
- Powerful processors for the best throughput and performance on the market
- Indicators for network and serial interfaces for easy troubleshooting
- Plug & Play installation utility eliminates configuration hassles for all IOLANs on you IP network
- TruePort software provides true remote serial ports over an Ethernet LAN
- [Share a serial port with multiple TCP or UDP servers](#)
- [Software Development Kit](#) available to develop powerful custom applications
- Power over serial cable models eliminate costs of a separate power installation
- Next Generation IP support (IPv6) for investment protection and network compatibility
- Compact and protective solid steel enclosure for tabletop, wall mount or DIN rail mounting

### Flexible and Reliable Serial to Ethernet Connections

The IOLAN DS/TS is ideal for connecting serial-based COM port, UDP or TCP socket based applications to remote devices. Perle's [TruePort re-director](#) provides fixed TTY or COM ports to server based applications enabling communication with remote devices connected to Perle device servers. You can also tunnel serial data between devices across an IP network.



Easy to set up and manage, the IOLAN DS1 has a software selectable RS-232/422/485 interface capability which simplifies setup and eliminates mechanical tampering associated with DIP switch based products.

Perle's Device Management software, shipped as standard with the IOLAN DS/TS, provides better centralised control and management of multiple units resulting in maximum uptime for your remote equipment. Protection

against electrostatic discharges and power surges is provided on the IOLAN DS/TS with its robust 15Kv ESD protection circuitry enabling organisations to utilise this solution with confidence.

## **IOLAN Plug-ins**

Backed with the experience of connecting hundreds of thousands of different devices to Ethernet over the years, using a Perle Device Server you can rest assured that virtually any device with a serial COM port will operate in conjunction with your desired application exactly as it did when you had it directly connected. If the unlikely event occurs that the Perle Device Server does not enable this out of the box, *Perle will make it work.*

Perle IOLAN Device Servers utilize customer installable “Device Plug-ins” to successfully network devices where other solutions have failed. [Request a free engineering consultation now.](#)

## **Advanced IP Technology**

With support for Next Generation IP (IPv6) the IOLAN range provides organizations with investment protection to meet this rapidly growing standard.

Demand for IPv6, which is compatible with IPv4 addressing schemes, is driven by the need for more IP address. With the implementation and rollout of advanced cellular networks, a robust method is needed to handle the huge influx of new IP addressable devices on the Internet. In fact, the US Department of Defense has mandated that all equipment purchased be IPv6 compatible. In addition, all major Operating Systems such as Windows, Linux, Unix and Solaris, as well as routers, have built-in support for IPv6.

It is therefore important for end users and integrators to select networking equipment that incorporates the IPv6 standard. The IOLAN line with support for IPv6 already built in, is the best choice in serial to Ethernet technology.

## **Lifetime Warranty**

The **Perle IOLAN DS/TS Device Server** is backed by the best service and support in the industry including Perle’s unique lifetime warranty. Since 1976 Perle has been providing its customers with networking products that have the highest levels of performance, flexibility and quality.

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### **Serial Port Access**

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Connect directly using Telnet and Reverse Telnet

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[Multihost access enables multiple hosts/servers to share serial ports](#)

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### **Accessibility**

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

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IPV6 and IPV4 addressing support

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### **Availability**

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

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### **Security**

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Local database USERID/PASSWORD

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Disable unused daemons

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### Terminal Server

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Telnet

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Auto session login

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MOTD - Message of the day

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### Serial machine to Ethernet

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[Tunnel raw serial data across Ethernet](#)

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Raw serial data over TCP/IP

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Raw serial data over UDP

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[Serial data control of packetized data](#)

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[Share serial ports with multiple hosts/servers](#)

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

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[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](#)

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"[TrueSerial](#) packet technology provides the most authentic serial connections across Ethernet ensuring serial protocol integrity"

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

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Customizable or fixed serial baud rates

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[Plug-ins allow customer or Perle provided plug-ins for special applications](#)

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[Software Development Kit \( SDK \) available](#)

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[Serial encapsulation of industrial protocols such as ModBus, DNP3 and IEC-870-5-101](#)

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[ModBus TCP gateway enables serial Modbus ASCII/RTU device connection to ModBus TCP](#)

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[Data logging will store serial data received when no active TCP session and forward to network peer once session re-established - 4K bytes circular per port](#)

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### Console Management

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[Sun / Oracle Solaris Break Safe](#)

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Reverse Telnet

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## 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, ARP, RARP, UDP, UDP Multicast, ICMP, BOOTP, DHCP, TFTP, Telnet, raw, reverse Telnet, WINS, HTTP, SNMPV3\*, RFC2217

\* No SNMPV3 encryption. For full SNMPV3 support see [IOLAN SDS Device Servers](#).

### Hardware Specifications - IOLAN DS1 - TS2

	IOLAN DS1	IOLAN TS2	IOLAN DS1 G	IOLAN TS2 G
Processor	MPC852T, 66 Mhz, 87 MIPS		600Mhz ARM Processor	
<b>Memory</b>				
RAM MB	16		512	
Flash MB	4		4000	
<b>Interface Ports</b>				
Number of Serial Ports	1	2	1	2
Serial Port Interface	Software selectable RS-232/422/485 on DB25M, DB25F, DB9M or RJ45	RS-232on RJ45 - 10 pin	Software selectable RS-232/422/485 on DB25F, DB9M or RJ45	RS-232on RJ45 - 10 pin
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		300bps to 230Kbps with customizable baud rate support	
Data Bits	5,6,7,8, 9-bit protocol support			

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 Serial Port		
Network	10-base T / 100-base TX ethernet RJ45	Autosensing 1000-base-T / 100-base TX / 10-base T Auto-MDIX	
	Software selectable Ethernet speed 10/100 Auto	Software selectable Ethernet speed 10/100/1000	
	Software selectable Half/Full/Auto duplex		
Ethernet Isolation	1.5Kv Magnetic Isolation		

### Power

Power Supply	120 V AC (USA), 230V AC (International) Wall Power Adaptor included		
Power Supply Options	Power via External power 9-30v DC, 4.8 Watts uses standard 5.5mm x 9.5mm x 2.1mm barrel socket, Power IN over serial cable.		
Nominal Input Voltage	12v DC / 24v DC		
Input Voltage Range	9-30v DC		
Power IOLAN over Serial	9 - 30v DC with DB25 and RJ45 models	N/A	9 - 30v DC with DB25 and RJ45 models
Typical Power Consumption '@ 12v DC ( Watts )	1.7	1.7	1.9                      2

### Indicators

LEDs	Power / Ready		
	Network Link		
	Network Link activity		
	Serial: Transmit and Receive data per port		

### Environmental Specifications

Heat Output ( BTU/HR )	5.8	5.8	6.8	8.9
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MTBF ( Hours )	124,004	299,680	267,483	254,834
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Calculation model based on MIL-HDBK-217-FN2 @ 30 °C

Operating Temperature

0°C to 55°C,

32°F to 131°F

Storage Temperature

-40°C to 66°C,

-40°F to 150°F

Humidity

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

Case

SECC Zinc plated sheet metal (1 mm)

Ingress Protection Rating

IP40

Mounting

Wall or Panel mounting . DIN Rail mounting kit optional

### Product Weight and Dimensions

Weight

.23 KG (.51 lbs)

Dimensions

90 x 64 x 22 (mm), 3.6 x 2.5 x 0.87 (in) case dimensions not including mounting tabs,

90 x 89 x 24 (mm), 3.6 x 3.5 x 0.87 (in) includes mounting tabs.

### Packaging

Shipping Dimensions

260 x 170 x 70 (mm), 10.2 x 6.7 x 2.8 (in)

Shipping Weight

0.49 KG (1.1 lbs)

### Regulatory Approvals

Emissions

CFR47:2003, Chapter 1, Part 15 Subpart B,(USA) Class A

CFR47 FCC Part 15 Subpart B:2015

ICES-003, Issue 4, February 2004 (Canada)


ICES-003:2016 Issue 6:2016

CISPR 32:2015/EN 55032:2015 (Class A)

CISPR 16-2-3:2010/A2:2014

	EN61000-3-2 : 2010, Limits for Harmonic Current Emissions	EN61000-3-2:2014, Limited for Harmonic Current Emissions
	EN61000-3-3 : 2010, Limits of Voltage Fluctuations and Flicker	EN61000-3-3:2013, Limits of Voltage Fluctuations and Flicker
Immunity	CISPR 24:2010/EN 55024:2010	
	EN61000-4-2: 2009 Electrostatic Discharge	
	EN61000-4-3: 2006/A2:2010: RF Electromagnetic Field Modulated	
	EN61000-4-4: 2004 Fast Transients	
	EN61000-4-5: 2006 Surge	
	EN61000-4-6: 2009 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	IEC 62368-1 and EN 62368-1:2014
	CAN/CSA-C22.2 No. 60950-1-03 and ANSI/UL 60950-1, Second Edition	CAN/CSA-C22.2 No. 62368-1-14 and UL 62368-1
Other	<a href="#">Reach, RoHS and WEEE Compliant</a>	
	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	
	ECCN - 5A991	
	HTSUS Number: 8471.80.1000	
	Perle Lifetime warranty	

### Serial Connector Pinout

IOLAN DB9M Socket	Direction	RS232	RS485 Full Duplex	RS485 Half Duplex	RS422
1		DCD	-	-	-
2		RxD	RxD+	-	RxD+

3	→	TxD	TxD+	DATA+	TxD+
4	→	DTR	-	-	-
5	—	GND	GND	GND	GND
6	←	DSR	RxD-	-	RxD-
7	—	RTS	-	-	-
8	←	CTS	-	-	-
9	—	-	TxD-	DATA-	TxD-

<b>IOLAN RJ45 Socket</b>	<b>Direction</b>	<b>RS232</b>	<b>RS485 Full Duplex</b>	<b>RS485 Half Duplex</b>	<b>RS422</b>
1	—	Power In	Power In	Power In	Power In
2	←	DCD	-	-	-
3	→	RTS	TxD+	DATA+	TxD+
4	←	DSR	-	-	-
5	→	TxD	TxD-	DATA-	TxD-
6	←	RxD	RxD+	-	RxD+
7	—	GND	GND	GND	GND
8	←	CTS	RxD-	-	RxD-
9	→	DTR	-	-	-
10	—	-	-	-	-

<b>IOLAN DB25M Socket</b>	<b>Direction</b>	<b>RS232</b>	<b>RS485 Full Duplex</b>	<b>RS485 Half Duplex</b>	<b>RS422</b>
1	—	Sheild	Sheild	Sheild	Sheild
2	→	TxD	-	-	-
3	←	RxD	-	-	-



4	→	RTS	-	-	-
5	←	CTS	-	-	-
6	←	DSR	-	-	-
7	—	GND	GND	GND	GND
8	←	DCD	-	-	-
9	—	-	-	-	-
12	—	Power In	Power In	Power In	Power In
13	—	-	-	-	CTS-
14	—	-	TxD+	DATA+	TxD+
15	—	-	TxD-	DATA-	TxD-
18	—	-	-	-	RTS+
19	—	-	-	-	RTS-
20	→	DTR	-	-	-
21	—	-	RxD+	-	RxD+
22	—	-	RxD-	-	RxD-
25	—	-	-	-	CTS+

<b>IOLAN DB25F Socket</b>	<b>Direction</b>	<b>RS232</b>	<b>RS485 Full Duplex</b>	<b>RS485 Half Duplex</b>	<b>RS422</b>
1	—	Shield	Shield	Shield	Shield
2	←	RxD	-	-	-
3	→	TxD	-	-	-
4	←	CTS	-	-	-
5	→	RTS	-	-	-
6	→	DTR	-	-	-
7	—	GND	GND	GND	GND

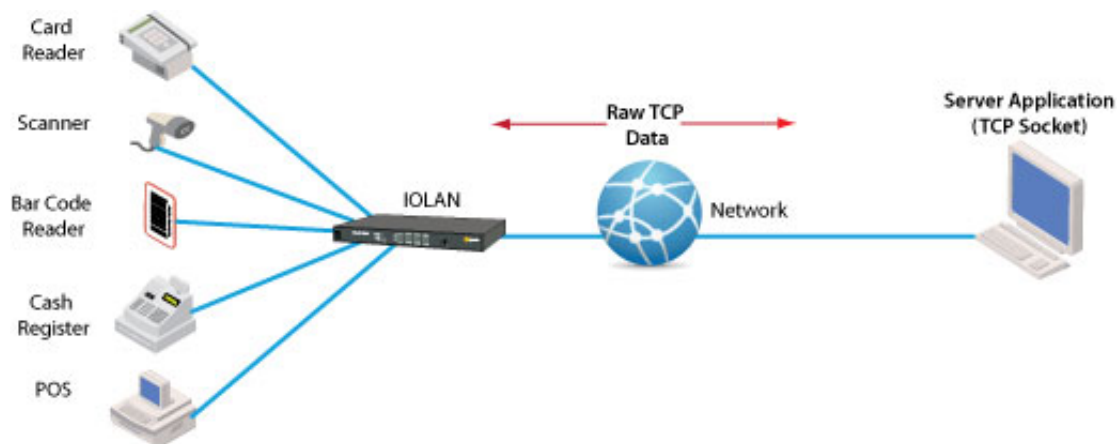
8	←	DCD	-	-	-
9	—	-	-	-	-
12	—	Power In	Power In	Power In	Power In
13	—	-	-	-	RTS-
14	—	-	RxD+	-	RxD+
15	—	-	RxD-	-	RxD-
18	—	-	-	-	CTS+
19	—	-	-	-	CTS-
20	←	DSR	-	-	-
21	—	-	TxD+	DATA+	TxD+
22	—	-	TxD-	DATA-	TxD-
25	—	-	-	-	RTS+

[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 the Perle IOLAN **serial-Ethernet** adapter.



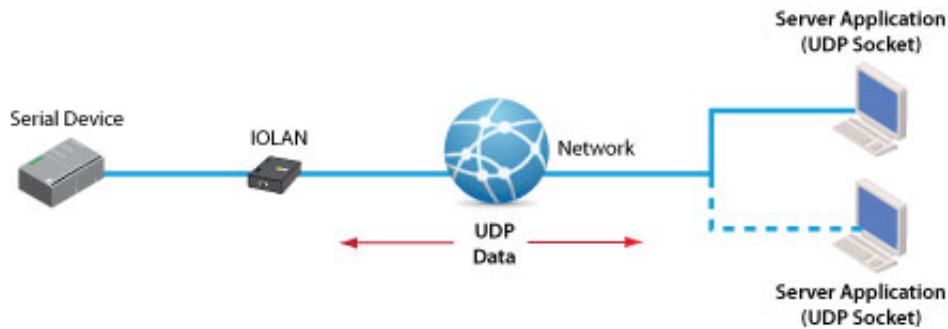
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## UDP

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### Using Raw UDP Sockets

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



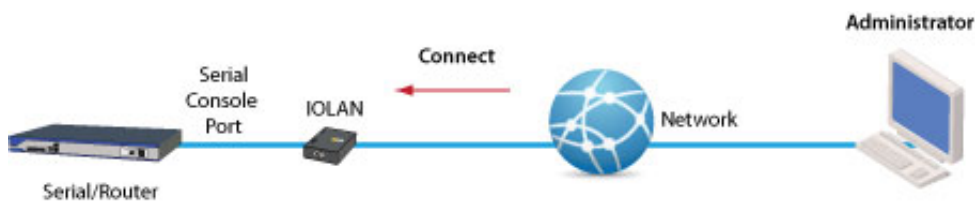
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## Console Server

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### 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 or out of band with dial-up modems. Perle IOLAN models with integrated modems are available.



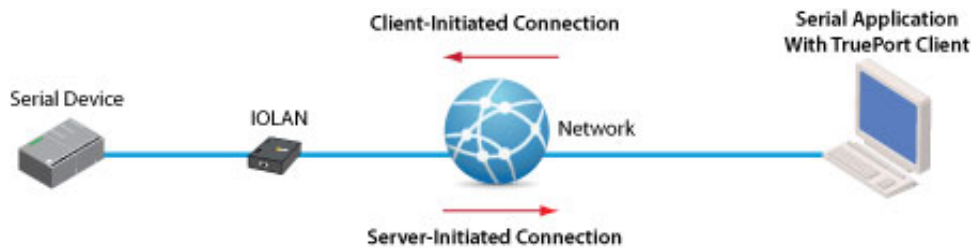
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## COM/TTY

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### 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.




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## Tunneling

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### 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).




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## Virtual Modem

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### 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.

