

IOLAN SDG L Serial Device Servers



perle.com/products/iolan-sdg-lte-device-server.shtml

Serial over 4G LTE and other WAN Cellular Networks

- High-Speed 4G LTE with fallback networks - HSPA+, UMTS, EDGE and GPRS/GSM
- 1, 2 or 4 software selectable RS232/422/485 serial port interfaces
- Gigabit Ethernet (10/100/1000 Base-T)
- Advanced security features for data encryption, user authentication and event management



The **IOLAN SDG L Serial Device Server** provides High-Speed **serial data transmission over 4G LTE cellular networks**. The IoT and M2M drives the desire to connect serial base (RS232, RS422 and RS485) devices like PLC's, meters, sensors, modems, POS, printers and industrial equipment to remote serial based COM port, UDP or TCP socket based applications. However, these devices are often located where hardwired Ethernet connections are not available. With the proliferation of cellular networks, and affordable data packages around the world, the means to transmit that data just got easier.

Delivering high performance in a compact size, the IOLAN SDG L offers support for a broad range of 4G LTE cellular data networks, extensive security, flexibility and IPv6 technology making it ideal for applications that require remote serial console management, data capture or monitoring.

Why IOLAN SDG L Device Servers are the preferred choice:

- High performance 4G LTE with fallback networks - HSPA+, UMTS, EDGE and GPRS
- Cellular data speeds up to 100Mbps
- High-Speed Gigabit Ethernet 1000base-T interface including support for 100base-TX and 10base-T
- Direct serial to serial peer connection over cellular data networks
- Remote equipment console management over cellular data networks.
- Redundant dual power inputs (barrel and terminal block)
- TrueSerial® packet technology delivers authentic serial connections for protocol integrity
- Indicators for network and serial interfaces for easy troubleshooting
- Plug & Play installation utility eliminates configuration hassles for all IOLAN's on your IP network
- TruePort – Perle's com/tty redirector for serial based applications operates on Windows, Vista, Linux, Solaris, SCO and Unix
- IPv6 support for investment protection and network compatibility
- Compact and protective solid steel enclosure for tabletop, wall mount or DIN rail mounting
- 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 unresponsive networking gear

Secure Serial over Cellular Connectivity

The **IOLAN SDG L Device Server** enables administrators to securely access remote serial console ports on equipment such as PBX, servers, routers, network storage equipment and security appliances via a cellular data network. Sensitive data such as credit card holder information is protected through standard encryption tools such as Secure Shell (SSH) and Secure Sockets Layer (SSL). Access by authorized users is assured via authentication schemes such as RADIUS, TACACS+, LDAP, Kerberos, NIS and RSA Security's SecurID tokens.

By using encryption technologies, the IOLAN SDG L can protect sensitive and confidential data from a serial device such as a credit card reader before being sent across a corporate Intranet or public Internet. For compatibility with peer encryption devices, all of the major encryption ciphers such as AES, 3DES, RC4, RC2 and CAST128 are fully supported.

Recognized as the most secure method for communicating to remote private networks over the Internet, the IPSec standard provides robust authentication and encryption of IP packets at the network layer of the OSI model. As a standard it is ideal for multi-vendor interoperability within a network providing flexibility and the ability to match the right solution for a particular application.

IOLAN Plug-ins

By choosing a Perle IOLAN 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. In the unlikely event that the Perle IOLAN 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 IPv6 the **IOLAN Serial Device Server** 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 LTE and cellular technology.

Flexible and Reliable Serial Connections

An **IOLAN SDG L Device Server** is ideal for wirelessly 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 serial based applications enabling communication with remote devices connected to Perle IOLAN's either in encrypted or clear text modes. You can also tunnel serial data between devices across a cellular network.

Perle's Device Management software provides better centralized control of multiple units resulting in maximum uptime for your remote equipment.

All IOLAN SDG L models have added protection against electrostatic discharges and power surges with robust 15Kv ESD protection circuitry enabling organizations to utilize this solution in the field with confidence.

Lifetime Warranty

All **Perle IOLAN Serial Device Servers** are 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.

Topology Support
Serial to 4G LTE cellular data networks with fallback networks - HSPA+, UMTS, EDGE and GPRS/GSM
Serial to 10/100/1000-Base-T Ethernet
Serial Port Access
Connect directly using Telnet / SSH by port and IP address
<u>Connect with EasyPort menu by Telnet / SSH</u>
<u>Use an internet browser to access with HTTP or secure HTTPS via EasyPort Web menu</u>
Java-free browser access to remote serial console ports via Telnet and SSH
<u>Ports can be assigned a specific IP address (aliasing)</u>
Multisession capability enables multiple users to access ports simultaneously on 2 and 4 port models
<u>Multihost access enables multiple hosts/servers to share serial ports</u>
Accessibility
In-band (Ethernet) and out-of-band (dial-up modem) support
<u>Dynamic DNS enables users to find a console server from anywhere on the Internet</u>
<u>Domain name control through DHCP option 81</u>
IPV6 and IPV4 addressing support
Availability
Primary/Backup host functionality enables automatic connections to alternate host(s)
Security
SSH v1 and v2
SSL V3.0/TLS V1.2, SSL V2.0
SSL Server and SSL client mode capability
SSL Peer authentication
<u>IPSec VPN : NAT Traversal, ESP authentication protocol</u>


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
<u>Tunnel raw serial data across Ethernet - clear or encrypted</u>
Raw serial data over TCP/IP
Raw serial data over UDP
<u>Serial data control of packetized data</u>
<u>Share serial ports with multiple hosts/servers</u>
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
<u>TruePort com/tty redirector</u> 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 <u>here</u>
<u>TrueSerial</u> 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 SDG L Serial Device Servers

IOLAN SDG LA		IOLAN SDG LE	
Processor	600Mhz ARM Processor		
Memory			
RAM MB	512M		
Flash MB	4G		
Interface Ports			
Number of Serial Ports	1, 2 and 4 (RJ45)		
Serial Port Interface(s)	Software selectable EIA-232/422/485		
Sun / Solaris	Sun / Oracle 'Solaris' Safe - no "break signal" sent during power cycle causing costly server re-boots or downtime		
Serial Port Speeds	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 (RJ45)		
Ethernet Network	Autosensing 1000-base-T / 100-base TX / 10-base T Auto-MDIX		
	Software selectable Ethernet speed 10/100/1000		
	Software selectable Half/Full/Auto duplex		
Ethernet Isolation	1.5Kv Magnetic Isolation		
Antennae (Included)	Two multiband swivel-mount dipole antennae - SMA connectors		
Cellular Data Rates	4G LTE (Cat. 3) DL: max. 100 Mbps, UL: max. 50 Mbps HSPA+ DL Cat.24 DL: max. 42 Mbps, UL: max. 5.76 Mbps EDGE Class 12 data rates DL: max. 237 kbps, UL: max. 237 kbps GPRS Class 12 data rates DL: max. 85.6 kbps, UL: max. 85.6 kbps		
SIM Card slot (empty)	Accepts Micro SIM (3FF) as per reference standards: ETSI TS 102 221 V9.0.0, Mini-UICC <i>The SIM card must be obtained by the user from their carrier of choice</i>		
Power			

Back of product		
Power Supply Provided	120 V / 230V AC to 12vDC Wall Power Adaptor included. (Barrel connector, commercial-grade temperature – 0 to 60C)	
2x Power Supply Selection	Use external power 9-30v DC on standard 5.5mm x 9.5mm x 2.1mm barrel socket or 2-pin terminal block	
Nominal Input Voltage	12/24v DC	
Input Voltage Range	9-30v DC	
Typical Power Consumption @ 24v DC (Watts)	1 port: 3.2 2 port: 3.5 4 port: 4.2	
Indicators		
LEDs	Power/Ready	
	Network Link	
	Network Link activity	
	Serial: Transmit and Receive data per port	
	Wireless Link	
	Wireless Strength	
Environmental Specifications		
Heat Output (BTU/HR)	1 port: 10.9 2 port: 11.9 4 port: 14.3	
MTBF (Hours)*	1 port: 201,211 2 port: 162,461 4 port: 144,606 *Calculation model based on MIL-HDBK-217-FN2 @ 30 °C	
Operating Temperature	-40° C to 75° C (-40 F to 167° F)	
Storage Temperature	-40 C to 85 C (-40 F to 185 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	0.4 kg (0.88 lbs)	

Dimensions	110 x 111 x 24 mm (4.3 x 4.4 x 0.9 in)	
Packaging		
Shipping Dimensions	26 x 17 x 7 cm (10.2 x 6.7 x 2.8 in)	
Shipping weight	0.71 kg (1.57 lbs)	
Regulatory Approvals		
Emissions	FCC Part 15, Subpart B, Class B	
	CFR47:2003, Chapter 1, Part 15 Subpart B,(USA) Class B	
	ICES-003, Issue 4, February 2004 (Canada)	
	EN55022:1998 + A1:2000 + A2:2003 Class B	
	EN61000-3-2 : 1995, Limits for Harmonic Current Emissions	
	EN61000-3-3 : 1995, Limits of Voltage Fluctuations and Flicker	
Immunity	EN55024:1998 + A1:2001 + A2:2003	
	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 : 2005 (2nd Edition) + A1 : 2009 and EN 60950-1 : 2006 + A11 : 2009	
	CAN/CSA-C22.2 No. 60950-1-03 and ANSI/UL 60950-1, First Edition April 1st 2003 (Recognized Component)	
Wireless Regulatory Domain	<ul style="list-style-type: none">FCC/ICESPTCRB <p>Users are responsible for verifying approval for use in their individual countries.</p>	<ul style="list-style-type: none">ETSIRT&TGCF <p>Users are responsible for verifying approval for use in their individual countries.</p>
Carrier Specific Approval	Auto-detecting; <ul style="list-style-type: none"><u>Verizon Certified</u><u>AT&T Certified</u>	Not required
Cellular Radio	EN 301 908-1 EN 301 908-2 EN 301 511 47 CFR Part 22 47 CFR Part 24 EN 301 908-13	
Radio Immunity	EN301 489-1 EN 301 489-7 EN301 489-24	

Cellular Data Technologies Supported	Penta Band LTE: 700/700/850/AWS (1700/2100)/1900 MHz; FDD-Band (13,17,5,4,2) Tri Band UMTS (WCDMA): 850/AWS (1700/2100)/1900 MHz; FDD-Band (5,4,2) Quad Band GSM/GPRS/EDGE: 850/900/1800/1900 MHz	Tri Band LTE: 700/AWS (1700/2100)/1900 MHz; FDD-Band (13,4,2); LTE only LTE (FDD 3GPP Release 9 UMTS/HSPA (FDD) 3GPP Release 8; Rx diversity GSM/GPRS/EDGE 3GPP Release 6; DARP/SAIC
Other	<u>Reach, RoHS and WEEE Compliant</u> <hr/> CCATS - G052929 <hr/> ECCN - 5A992A <hr/> HTSUS Number: 8471.80.1000 <hr/> Perle Limited Lifetime Warranty	

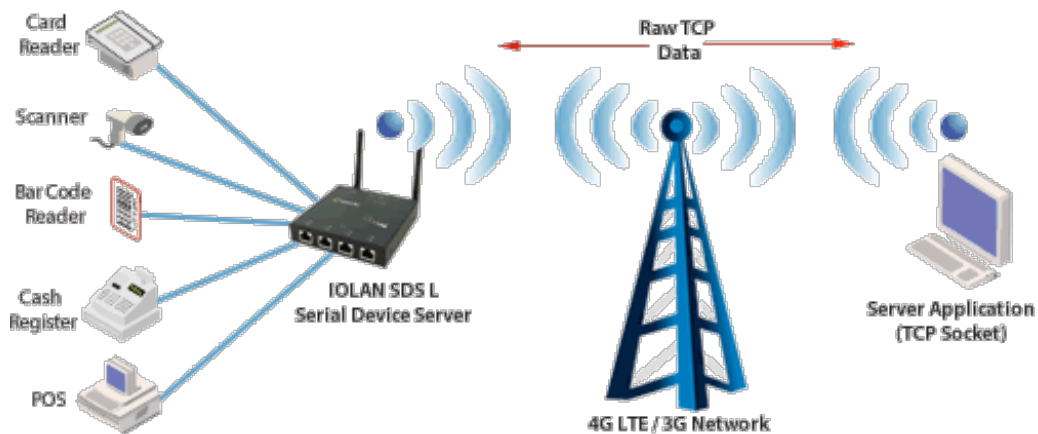
Serial Connector Pinout					
IOLAN RJ45 Socket	Direction	RS232	RS485 Full Duplex	RS485 Half Duplex	RS422
1	←	DCD	-	-	-
2	→	RTS	TxD+	DATA+	TxD+
3	←	DSR	-	-	-
4	→	TxD	TxD-	DATA-	TxD-
5	←	RxD	RxD+	-	RxD+
6	—	GND	GND	GND	GND
7	←	CTS	RxD-	-	RxD-
8	→	DTR	-	-	-

Optional Perle adapters for use with straight thru CAT5 cabling

TCP

Using RAW TCP Sockets over a Cellular Data Network

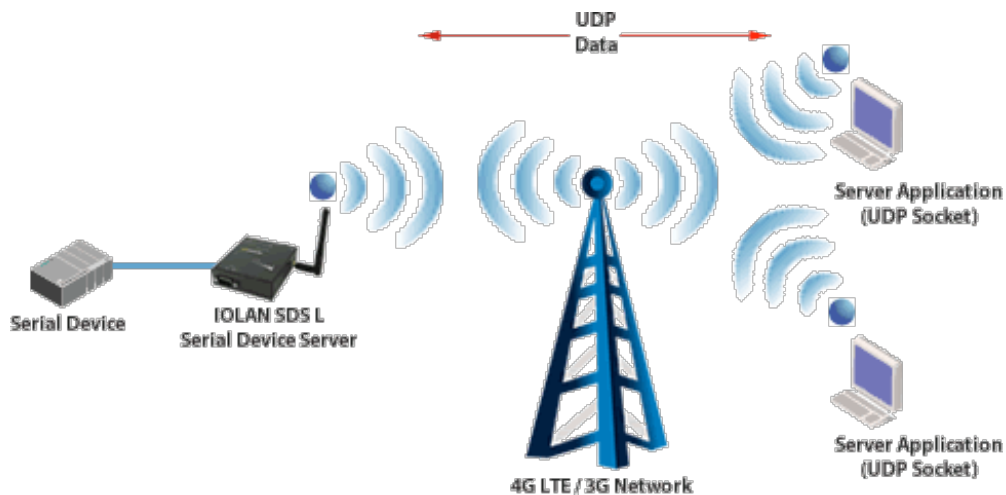
A raw TCP socket connection can be initiated from the serial device or from the remote host/server. This can either be on a point to point or shared basis where a serial device can be shared amongst multiple devices. TCP sessions can be initiated either from the TCP server application or from the Perle IOLAN SDS L.



UDP

Using Raw UDP Sockets over a Cellular Data Network

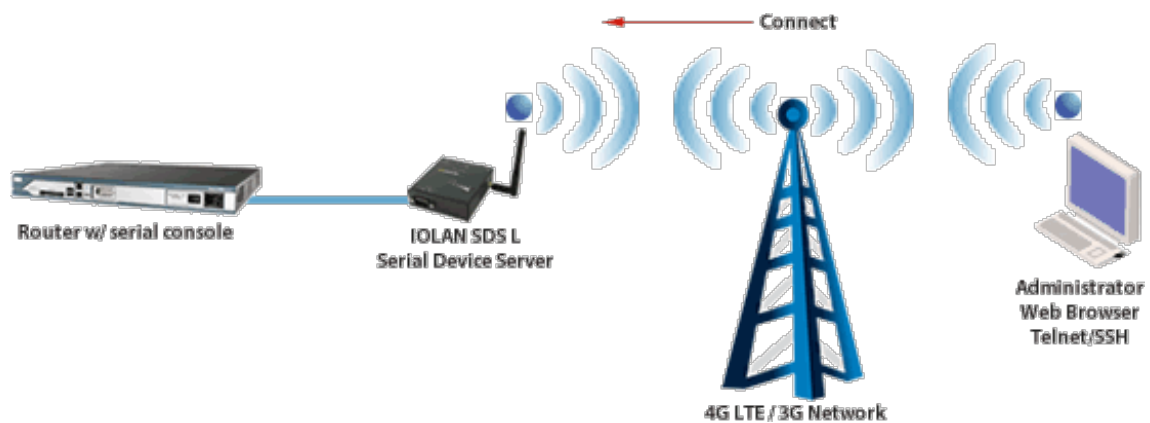
For use with UDP based applications, Perle IOLANs can convert serial equipment data for transport across UDP packets either on a point to point basis or shared across multiple devices.



Console Server

Console Management over a Cellular Data Network

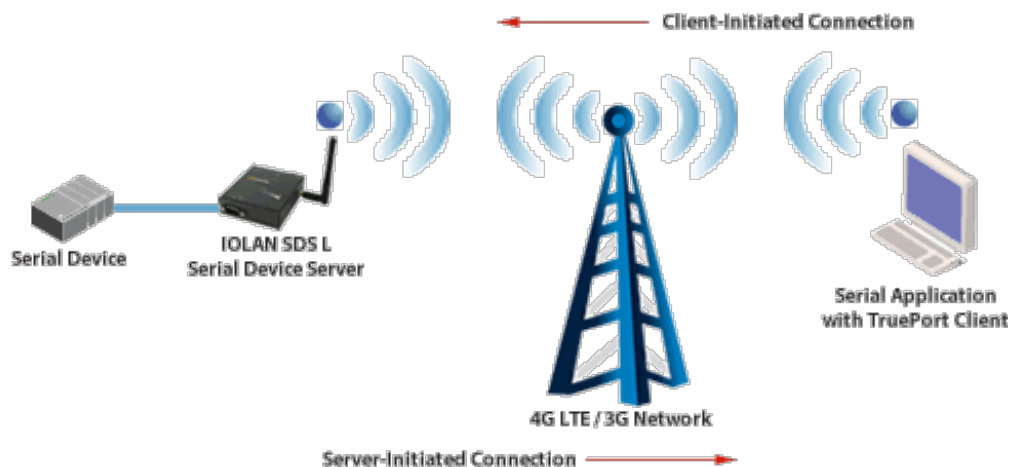
For access to remote console ports on routers, switches, etc, Perle IOLAN's enable administrators secure access to these RS232 ports via in-band Reverse Telnet / SSH over wireless LANs



COM/TTY

Connect Serial-based Applications over cellular data network 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.



Serial Tunneling over a Cellular Data Network

Serial Tunneling between two Serial Devices over a cellular data network - Peer to Peer

Serial Tunneling enables you to establish a link across a cellular network 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).

