

Preface

Audience

This guide is for the network or computer technician responsible for installing the Perle IOLAN SCG also referred to as the IOLAN within this document.

Familiarity with the concepts and terminology of Ethernet and local area networks is required.

Purpose

This document describes the hardware and physical characteristics of the Perle IOLAN SCG. It covers hardware features as well as installation and operation of the IOLAN. This document does not cover how to configure your IOLAN. Information to configure your IOLAN can be found in the IOLAN Secure User's Guide and in the IOLAN SCG Expandable Models Quick Start Guide that came with your product.

Additional Documentation

Document	Description
IOLAN Secure User's Guide	User guide explaining how to configure the IOLAN features using the WebManager application. New users should use this method to configure the IOLAN.
IOLAN Secure Command Line Interface Reference Guide	Command reference guide using CLI commands to configure the IOLAN (this is an advanced way to configure the IOLAN)

Document Conventions

This document contains the following conventions:

Most text is presented in the typeface used in this paragraph. Other typefaces are used to help you identify certain types of information. The other typefaces are:

Note: *Means reader take note:* notes contain helpful suggestions.

Caution: Means reader be careful. In this situation, you might perform an action that could result in equipment damage or loss of data.

Warning: IMPORTANT SAFETY INSTRUCTIONS

Means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

Cautions and Warnings

Warning: Power sources must be off prior to beginning the power connection steps. Read the installation instructions before you connect the unit to its power source.

Warning: Ensure that the voltage and current ratings of the intended power source are appropriate for the SCG as indicated on the product label.

Warning: Ensure that the installation and electrical wiring of the equipment is performed by trained and qualified personnel and that the installation complies with all local and national electrical codes.

Warning: The working voltage inputs are designed for operation with Safety extra low Voltage (SELV). Connect only to SELV circuits with voltage restrictions in line with IEC/EN 62368-1.

Warning: This equipment must be used in the matter specified by the manufacturer.

Warning: In case of malfunction or damage, no attempts at repair should be made by the user. Do not dismantle this product.

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS GUIDE ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS GUIDE ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with this hardware guide may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to correct the interference at their own expense.

Modifications to this product not authorized by Perle could void the FCC approval and negate your authority to operate the product.

Perle reserves the right to make changes without further notice, to any products to improve reliability, function, or design.

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Publishing History

Date	Revision	Update Details
June 2018	A.06.21.2018	Initial release of the IOLAN SCG series.
October 2018	A.10.28.2018	Updates to Front panel information. Added serial pin-out.
September 2021	A.09.01.2021	Added router functionality.

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Overview

For infrastructure management, the Perle's IOLAN SCG series will provide the most versatile access to your IT equipment's serial and USB consoles whether in a large scale data center or remote branch. The IOLAN SCG series is the next edition in our highly successful line of serial console servers. The IOLAN SCG gives you a way to access them remotely from anywhere there is a network or modem connection. These advanced console servers provide models that include integrated wireless technology, 4G/LTE cellular technology, and remote modem support.

IOLAN SCG Models

All IOLAN SCG models have the following basic hardware set;

- IOLAN SCG Chassis: 1U-tall (1.75 inch), rack-mountable chassis
 - Up to 16/32/48 RS-232 RJ45 ports
 - Up to 16/32/48 Multi-protocol (RS-232/422/485) RJ45 ports
 - Up to 16/32/48 USB ports
 - any combination of 16 port modules up to a total of 48 ports on the back of the unit
- 2 auto-sensing Ethernet Combo ports (RJ45 10/00/1000 Mbps, SFP 100/1000 Mbps)
- 1 Micro-USB and 1 RS-232 RJ45 Console Admin Port
- Two USB front ports for serial class devices
- Micro SD card slot (SD card provided by the user)
- Front Panel Display with keyboard

Additional hardware on some models

- Internal V.92 modem with one RJ11 connector
- Cellular WWAN capability based on 4G LTE technology (North American or European)
- SIM card slot to be used for 4G LTE networks
- Wireless LAN (Wifi) client 802.11 a,b,g,n @2.4Ghz/5Ghz support

What's Included

The following components are included with your product:

- IOLAN SCG Chassis with up to 3 serial cards each containing 16 serial ports.
- Power cables for dual AC (AC models)
- DC power terminal plug strain relief bracket (DC models)
- Quick Start Guide
- Rack mount kit
- 1 meter CAT5 straight-through patch cable
- Adapter to convert from Cisco (RJ45) pin-out to DB9F

Added components for wireless models:

- 2 x RP-SMA Antennas

Added components for cellular models:

- Two multi-band swivel-mount dipole antennas

What You Need to Supply

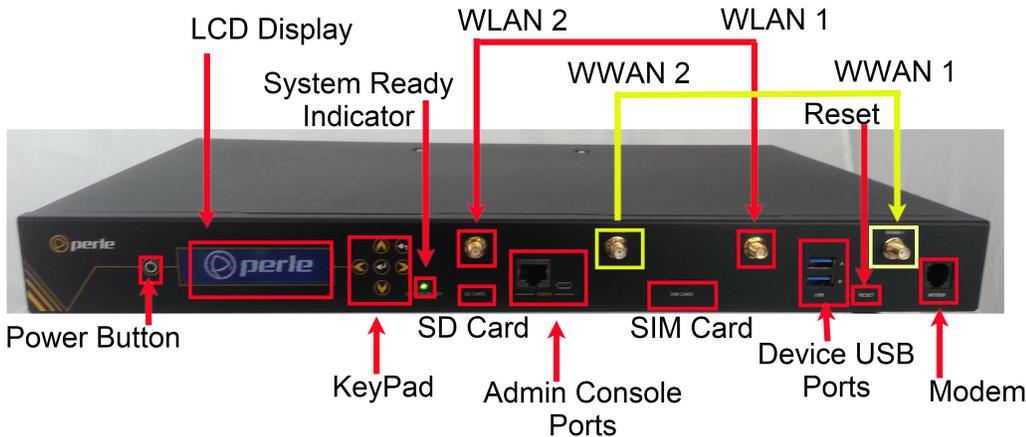
Before you can begin, you need to have the following:

- Serial cable to connect serial devices to your IOLAN unit
- An Ethernet CAT5e 10/100/1000BASE-T cable or an SFP module with the appropriate fiber cable to connect the IOLAN unit to the network
- Data Plan subscription with a supported carrier and activated 3FF SIM Card for (SCG-LA and SCG-LE models only)

IOLAN SCG Components

IOLAN SCG Front View

(Pictured SCG50 RRU LAWMM)



IOLAN SCG Back Views

Three module bays are available on the back of the IOLAN unit. A combination of 16-port USB modules, 16-port RS-232 RJ45 modules and 16-port Multi-protocol modules can be installed to provide up to forty-eight serial ports. The modules are field upgradeable.

Each IOLAN has an additional two USB device ports on the front of the unit.

**IOLAN SCG50RRR-LAWM
(Shown)**



**IOLAN SCG50UUU-LAWM
(Shown)**

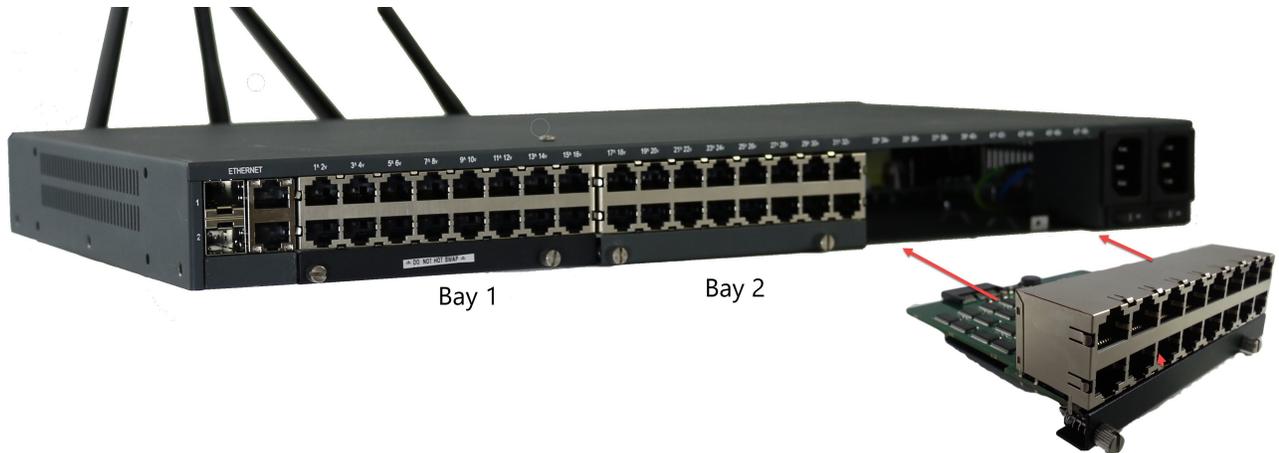


IOLAN SCG 50RRU-LAWM (Shown)



Installing IOLAN SCG Modules

1. Disconnect power from the IOLAN. Failure to do so will result in damage to the IOLAN.
2. Using your fingers, loosen the retainer screws holding the face plate to the unit.
3. Gently remove the face plate and set aside.
4. Align the expansion module up with the opening where you want to insert the module.
5. Gently push the module into place until you hear an audible click.
6. Tighten the retainer screws on each side.

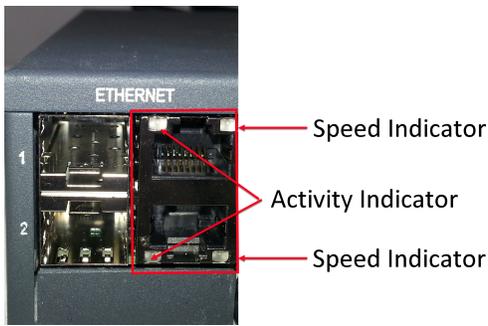


Note: When installing modules into the IOLAN, Bay 1, Bay 2, and Bay 3 must be populated in consecutive order starting at Bay 1.

Warning: Power must be off before attempting to insert or remove a module. Failure to do so will result in damage to the IOLAN.

Ethernet LAN Ports

There are two Ethernet combo pairs (RJ45 and SFP) identified as Ethernet 1 and 2. The two Ethernet RJ45 ports provide the standard Ethernet interface speeds of 10/100/1000 Mbps through twisted pair (UTP) cables of up to 100 meters (328ft) in length. The two Ethernet SFP transceiver ports support the use of single mode, multi-mode, fiber optic and copper SFP transceiver modules. When using the SFP transceiver ports, the speed and distance is dependent on the SFP module inserted. The IOLAN supports SFP modules with speeds of 100Mbps or 1000Mbps. SFP modules are provided by you. Each combo pair consists of a RJ45 port and a SFP transceiver port. Only one port in each combo pair can be active at a time. Should both ports in a combo pair be connected, then the first port to get a link up will take priority. Once the IOLAN has connected and the link is established, the speed LED will turn on. This LED will indicate whether you have a 10 (copper only), 100 or 1000 Mbps link on either of the Ethernet combo ports.



Ethernet LAN RJ45 10/100/1000

Connect LAN cables to the Ethernet 1 and/or Ethernet 2 ports on the back of the IOLAN. Cat5e cables are recommended for 1000 Mbps connections.

Ethernet/SFP Link Status

Speed Indicator	Activity Indicator	Description
Green	Flashes with activity	1000 Mbps
Orange	Flashes with activity	10 /100 Mbps
Off	N/A	No LAN connection

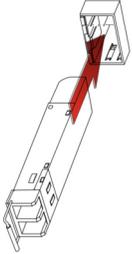
SFP modules

SFP modules are inserted in the SFP transceiver slots on the back of the IOLAN. The IOLAN will automatically detect the speed of the SFP inserted.

Inserting the SFPs

1. Align the SFP module in front of the slot to establish alignment.
2. Insert the module and push inwards with your thumb until you hear a click. Do not force the SFP module in. SFP modules are keyed so you can only insert them one way.

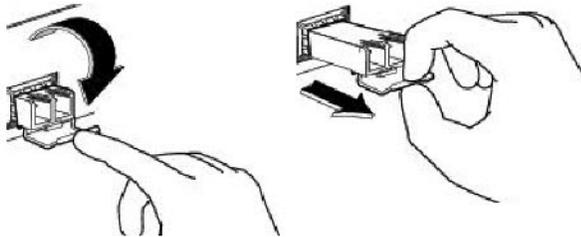
3. If the SFP module is equipped with a clasp, ensure the clasp is in the locked position. The appropriate fiber cable can now be connected to the SFP module.



Once the device is connected and the link is established the speed LED will turn on. This LED will indicate whether you have a 100 or 1000 Mbps link. See [Ethernet/SFP Link Status](#).

Removing SFPs

1. Disconnect the fiber cable from the SFP module.
2. If the SFP module is equipped with a clasp, move it to the unlocked position and use the clasp to pull the SFP towards you.
3. If the SFP module is not equipped with a clasp, then with your fore finger and thumb, firmly grip the SFP and pull towards you.



Power

AC Models

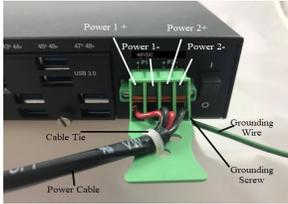
The two power connectors are located on the back panel of the IOLAN. Both power switches should be in the off position when connecting the power cords. Both the power cords can be connected to the IOLAN providing redundant power to the IOLAN. If one power supply should fail the IOLAN will use the other power supply to continue to power the unit without interruption.



Warning: Before servicing this product ensure both power cords have been disconnected.

DC Models

The Power switch located on the back panel of the IOLAN. The single On/Off switch controls both of the DC inputs. The power switch should be in the off position when connecting the power sources. Both power sources can be connected to the IOLAN providing redundant power to the IOLAN. If one power source should fail the IOLAN will use the other power source to continue to power the unit without interruption.



Warning: Before servicing this product ensure both power sources have been disconnected.

Power Button

The power button provided on the front panel allows you to “soft” power-down the IOLAN. Pressing the power button for 6 seconds will cause the IOLAN to power off. Pressing the power button again will power up the system.

Note: When the power is turned off using this method, the power supplies are still active.



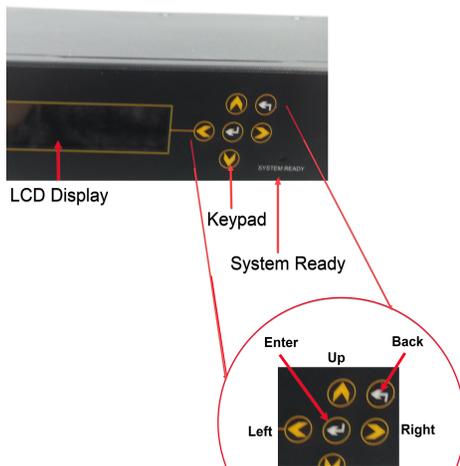
Power Button

Front LCD Display and Keypad

The IOLAN provides a front LCD Display and Keypad. The Front Panel can be used to configure a couple of basic parameters on the IOLAN such as an IP address as well as providing some basic statuses. It's main usage is for initial configuration to allow IP access as well as basic diagnostic tool when things are not working as expected.

When the IOLAN is booting, the LCD display is used to provide boot progress. The LCD can display up to 4 lines of text with each line holding up to 18 characters.

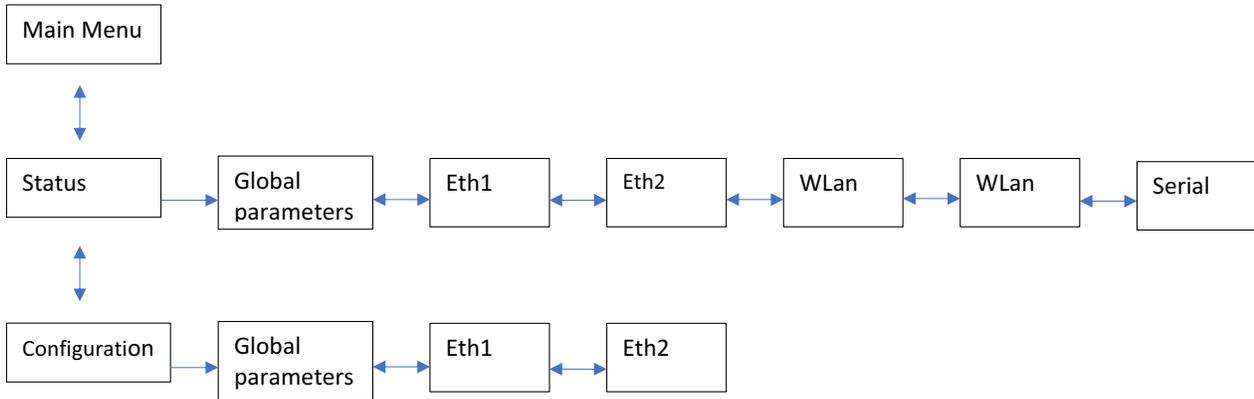
Pressing the up, down, left and right arrow keys will enable your to scroll through the various screens. The back arrow key will take you to the main menu to select Status or Configuration. The Front LCD Display has additional options such as keypad lock and keypad enable security pin. See the IOLAN Secure User's Guide for more information on these features.



Button	Action
Right arrow Left arrow	To move from one menu to another. In edit mode, to scroll through options for input entry or to move to the next input field.
Enter (center button)	To select the presented option. In edit mode, to enter input mode or to save the selected option and exit edit mode.
Up arrow Down arrow	To scroll up or down the list of parameters within a specific menu.
Back arrow	To go back to previous option

Front Panel Screens

High level navigation



Detailed information for each menu

Main

Main menu	<ol style="list-style-type: none"> 1. IOLAN Name 2. Date/Time 3. Custom Line 1 4. Custom Line 2
Status	Entry point for status information
Configuration	Entry point for configuration

Status

Global Parameters	
Hostname	IOLAN SCG System name.
Uptime	Shows the duration of time that the IOLAN has been powered on. (24 hour clock).
Console Port baud rate	Displays the speed of the RJ45 console port.
Default gateway	Specify the default gateway if you need to be able to access the IOLAN from a different network.
Software	Shows the current version of software.
Internal Temperature	Temperature inside chassis in Celsius
Chassis Serial #	xxx-xxxxxxxxxxxxxx

Eth 1	
Eth 1 info	Includes; <ul style="list-style-type: none"> ● IP address ● Subnet ● MAC address
Eth 2	
Eth 2 info	Includes; <ul style="list-style-type: none"> ● IP address ● Subnet ● MAC address
WLAN*	
Mode SSID Signal	Client / Access Point SSID of interface if we are a WLAN server SSID we are connected to if we are a WLAN client WiFi signal strength. Client mode only.
WiFi interface info	Includes; <ul style="list-style-type: none"> ● IP address ● Subnet ● MAC address
WWan*	
Carrier Signal	Name of Cellular network we are connected to. Cellular signal strength
Cellular interface info	Includes; <ul style="list-style-type: none"> ● IP address ● Subnet ● MAC address
Serial ports	
Ports 1 - 16: card type 1 - 8: xxxx xxxx 9 - 16 xxxx xxxx	Card type can be any one of; R232 USB Multi “x” indicates the port had Rx activity in the last minute.

Ports 17 - 32: card type 17 - 24: xxxx xxxx 25 - 32: xxxx xxxx	Card type can be any one of; R232 USB Multi “x” indicates the port had Rx activity in the last minute.
Ports 33- 48: card type 33- 40: xxxx xxxx 41- 48: xxxx xxxx	Card type can be any one of; R232 USB Multi “x” indicates the port had Rx activity in the last minute.
Ports 49 - 51 USB 50 - 51: xx *Modem: x	“x” indicates the port had Rx activity in the last minute.
*WLAN, WWAN and Modem status information will only display if the IOLAN SCG has a WLAN, WWAN or Modem interface.	

Configuration

Global Parameters	
Default gateway	Specify the default gateway if you need to be able to access the IOLAN from a different network.
Console Port baud rate	This defines the baud rate for the RJ-45 console port. Valid rates are; <ul style="list-style-type: none"> ● 9600 ● 19200 ● 38400 ● 57600 ● 115200
Eth 1	
DCHP	Enable/Disable DHCP on this port.
IP address	Enter the IPv4 address of this interface. (only available if DHCP is turned off)
IP subnet	Enter the IPv4 subnet of this interface. (i.e. 255.255.0.0)

Eth 2	
DCHP	Enable/Disable DHCP on this port.
IP address	Enter the IPv4 address of this interface. (only available if DHCP is turned off)
IP subnet	Enter the IPv4 subnet of this interface. (i.e. 255.255.0.0)
Save Config?	This options is presented whenever a configuration item has been modified. Specifying “No” to this prompt will ignore the value just entered.

Using the Front Panel

To enter setup information (for example IPv4 address):

1. From the Main Menu (IOLAN name, date and time), press the Down arrow to scroll to Configuration, now press the right arrow to enter configuration mode.
The display should read “Global parameters”
2. Press the right arrow again
The display should read “Eth1”
3. Press the Down arrow.
The display should read Eth1 DHCP : On / Off
Turn DHCP off if it is not off already.
 - Press the “Enter” key. Will display two options “ON” and “OFF”.
 - Use the left or right arrow to move the cursor to the desired option.
 - Press the “Enter” key.
 - Will be prompted whether you want to save the change.
 - Use the left or right key to select your response and press “Enter”
4. Press the Down arrow again.
The display should now read:
Eth1 IPv4
000.000.000.000
5. Press the Enter button to go into Edit mode. A cursor will flash under the first zero (0) in the IP address.
6. To enter values:
 - Use the left or right arrow to move the cursor to the left or right position.
 - Use the up or down arrow to increment or decrement the numerical value.
7. Press the Center button for Enter
8. You will be asked if you wish to “save config?”
 - Enter Yes and press Enter.
9. Press the Down arrow to scroll to the next screen to enter the Network mask.
10. Use steps 4 to 8 to enter the Eth1 Network Mask.
11. Press the Down arrow to continue to enter addresses for Eth2 if desired, else press the Back button twice to go to the Main Menu.

SD Card

The SD card may be used for storage of firmware and configuration files. Please refer to the IOLAN Secure User’s Guide for more details.



Console Ports

The IOLAN has one RJ45 console port (8 pin connector with DTE pin-outs) on the front of the IOLAN for use with PC's equipped with a serial com port. Additionally, the IOLAN has one Micro-USB console port which uses a standard Micro-B USB connector. Only one port at a time can be the active console port. If a device is connected to the USB port, it is the "active" console port. In order to use the RJ45 port, ensure that the USB console port is not connected.



RJ45 Console Port

See [Appendix C - pin-outs and Cabling Diagrams](#) for cabling information.

To connect to the RJ45 console port:

1. Connect the power cords, then switch the power switches on the back of the IOLAN to the On position.
2. Allow the IOLAN to complete the boot up sequence.
3. Connect an RJ45 cable directly from the IOLAN to the COM port on your PC using the RJ45-DB9 adapter that was shipped with your IOLAN. Ensure that nothing is connected to the USB console port.
4. On the PC, select Choose Start-> Control Panel-> Hardware and Sound or equivalent on the Windows Operating System you are using. The exact procedure may vary depending on the version of Windows you are using.
5. Select the Device Manager from the list, Expand the Ports (COM & LPT) section. This will expand the drop down to show the number of com ports on your system. Connect the cable to one of these ports (probably COM1 or COM2).
6. Start a terminal-emulation program (such as Putty or SecureCRT) on the COM port where you have connected the cable to the PC.
7. Configure this COM port within the terminal emulation program with the following parameters:
 - 9600 baud
 - 8 data bits
 - 1 stop bit
 - No parity
 - None (flow control)
8. Press the Enter key on the keyboard. If this IOLAN has never been configured, you will now be in setup mode. See [Fast Setup mode](#) below for a description of this mode. If the IOLAN has previously been configured, you will be presented with a login prompt.

See the IOLAN Secure Command Line Interface Reference Guide for more information on using the CLI commands.

Micro-USB Console Port

The Micro-USB console port uses a standard Micro-B USB connector.

To connect to the Micro-USB Console port:

1. Connect the power cords, then set the power switches on the back of the unit to the On position.
2. Allow the IOLAN to complete the boot up sequence.
1. Connect a USB cable to the PC's USB port, then connect the other end of the cable to the IOLAN Micro-B USB connector.
2. On the PC Choose Start -> Control Panel -> Hardware and Sound (or equivalent) on the Windows Operating System. Choose the Device Manager, and expand the Ports section. The assigned COM port can be identified.
3. Start a terminal emulation program (such as Putty or SecureCRT) on the com port where you have connect the cable to the PC.
4. Configure your COM port within the emulation program on the PC as:
 - 9600 baud
 - 8 data bits
 - 1 stop bit
 - No parity
 - None (flow control)
5. Press the Enter key on the keyboard. If this IOLAN has never been configured, you will now be in setup mode. See *Fast Setup mode* below for a description of this mode. If the IOLAN has previously been configured, you will be presented with a login prompt.

Fast Setup mode

Fast setup mode allow the user to configure basic operating parameters on the IOLAN SCG. Your IOLAN SCG has been shipped to you in “Factory Default” mode. When the IOLAN is in this mode, it will automatically power up in “Fast setup” mode. When in “Fast setup” mode, the system LED will be flashing green. In this mode, you will be asked to enter some basic operating parameters including setting up the initial user ID and password for the IOLAN.

After entering the basic operating parameters, you can continue to use the console port as the method of configuring other aspects of the IOLAN such as entering an IP address and default gateway. These parameters will allow you to access the IOLAN using an Ethernet connection.

Once the IOLAN has been configured with an IP address, you can Telnet or SSH into the IP address of the IOLAN and configure the unit using the command line interface. See the IOLAN Secure Command Line Interface Reference Guide for more information on using the CLI commands. If you wish to use a graphical interface, you can HTTP or HTTPS to the IOLAN using any web browser. This presents a more friendly and intuitive method of configuring the IOLAN.

Micro SIM Card (only applies to certain models)

The SIM card slot is used for IOLANs that use 4G/LTE cellular technology. Data Plan subscription with a supported carrier and activated 3FF (Micro-SIM) Card is needed.



Installing the Micro SIM Card

1. Insert your Micro SIM card into the slot.
2. The Micro SIM card will fit only one way (do not force the Micro-SIM card in or you could damage your SCG).
3. Gently press the Micro- SIM card forward until you hear it click into place within the SIM slot.

Note: To verify that your MicroSIM card is correctly installed:
 From the CLI command prompt run the show command.
 SCG16 #show wwan status

```

SIM
  ICCID                89302720396916966778
  IMSI                 302720391780097
  PIN retry counter    5
  
```

Front USB A and B Serial Ports

These ports are used to connect additional USB serial devices.



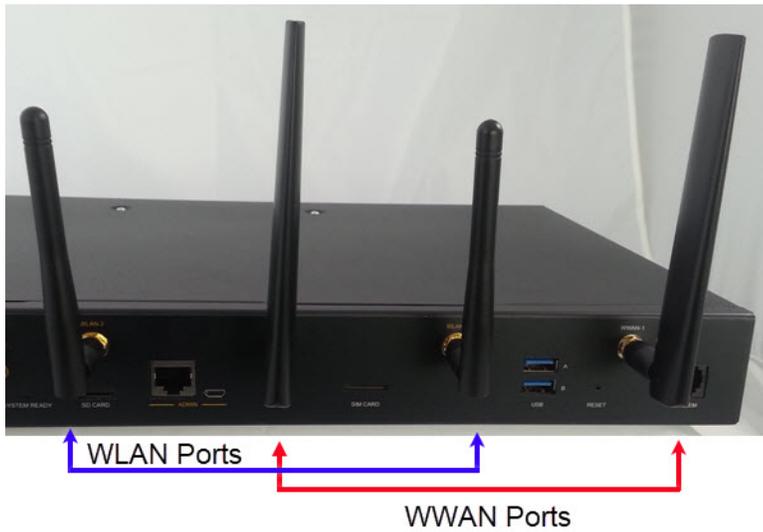
Modem Port (only applies to certain models)

Some IOLAN models come with a built-in modem with an RJ11 connector.



WLAN/WWAN Antennas (only applies to certain models)

Screw each of the antennas to the IOLAN. (hand tighten only - do not use tools to tighten).



Resetting the IOLAN SCG

Reset Button location



This inset reset button allows you to reset the IOLAN or reset the IOLAN to the Perle factory default settings.

When you press and hold the reset button...	Description
Less than 3 seconds	Reboots. All configuration and files will remain the same.
10 seconds	Reboots and resets the configuration to the factory default All configuration, user IDs, passwords and security certificates are deleted.
While powering up	<ul style="list-style-type: none"> - Saves the startup configuration. - Boots with no configuration file. - Allows you to do setup mode.

Connecting to the RS-232 RJ45 Device Ports

Typically, you are connecting a serial device such as a workstations, server or router console port. When doing so, the IOLAN SCG acts as a “DCE” device which is the default setting for the serial ports. If you are connecting a DCE type of device to the IOLAN (i.e. an external modem), you would need to change the mode of the IOLAN port from a DCE to a DTE mode. This can be done via configuration. When using the Web manager, you would set the serial port to “rolled”. See the IOLAN Secure User’s Guide for more information. Refer to your serial device port pin-out and [Appendix C - pin-outs and Cabling Diagrams](#) to determine how to wire up your cable.

Connecting to the RS-232/422/485 RJ45 Device Ports

You will need an appropriate cable depending on the protocol being used to communicate with your device (232/422 or 485). The pin-out information for each mode can be found in [Appendix C - pin-outs and Cabling Diagrams](#).

Please note that in RS-232 modes, the IOLAN only acts as a DCE device.

Connecting to the Front and Rear USB Device Ports

Connect devices, workstations, servers or routers using USB cables.

Configuring the IOLAN SCG

The IOLAN can be configured, operated and monitored using any of the following methods. See the IOLAN Secure User's Guide for more details on these methods.

Front Panel

The Front Panel can be used to configure a few basic parameters on the IOLAN such as an IP address, gateway and console port baud rate as well as providing some basic statuses. It's main usage is for initial configuration to allow IP access as well as basic diagnostic tool when things are not working as expected.

WebManager

The Perle WebManager is an embedded Web based application that provides an easy to use a browser interface for managing the IOLAN. This interface provides the ability to configure and manage the IOLAN. This is accessible through any standard desktop web browser. You must have pre-configured a valid IP address on the IOLAN before connecting with the WebManager.

CLI

A text-based Command Line Interface based on industry standard syntax and structure. The CLI can be accessed from the console port. Once a valid IP address is configured on the IOLAN, Telnet, SSH or the Web interface can also be used to access the IOLAN for administration purposes. See the IOLAN Secure Command Line Interface Reference Guide for more information.

SNMP

SNMP can be used on the IOLAN to extract status and statistic information. To do so, an SNMP compatible management station that is running an SNMP manager application, (HP Openview as an example), will be required.

Appendix A - Technical Specifications

Technical Specifications	
Input power	100-240 VAC, 50-60 Hz, 1.5 Amps max
Interfaces	
RJ45 Serial class RS-232 ports	16, 32, 48 - shielded RJ45 ports
RJ45 Serial Multi-protocol RS-232/422/485 ports	16, 32, 48 - shielded RJ45 ports
USB Device ports	16, 32, 48 - USB ports + 2 on the front
Ethernet Ports	2 Ethernet 10/100/1000 Up to 100 meters (328 ft.) Auto-negotiation Auto-MDI/MDIX Ethernet isolation 1500 V
SFP Transceiver Ports	2 SFP slots supporting SERDES 100/1000Base-X SFP modules supplied by Perle, Cisco or other manufacturers of MSA compliant SFP's SFP's supporting SGMII protocol are also supported (example 1000Base-T).
Console Ports	
	RJ45 DTE - serial port Micro-USB Type B female port - serial interface
Standards	IEEE 802.3u for 100Base-TX IEEE 802.3ab for 1000Base-T IEEE 802.3x for Flow Control
Environmental Specifications	
Operating Temperature Ranges	0°C to 55°C (32°F to 131°F)
Storage Temperature	-40°C to 85°C (40°F to 185°F)
Operating Humidity Range	5% to 90% non-condensing
Storage Humidity Range	5% to 90% non-condensing
Operating Altitude	Up to 3,048 meters (10,000 feet)
Standards and Certifications	
Safety	UL/ULC/EN 62368-1 (previously 60950-1) CE Mark CAN/CSA-C22.2 No. 62368-1-14
EMI/EMC	FCC 47 Part 15 Subpart B Class A ICES-003 (Canada) EN55032 (CISPR32)
	EN55024

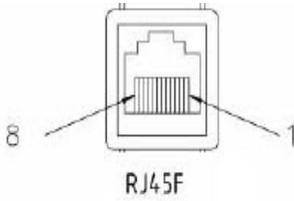
Technical Specifications	
	EN61000-3-2 Limits for Harmonic Current Emissions EN61000-3-3 Limits of Voltage Fluctuations and Flicker EN61000-4-2 (ESD): Contact: EN 61000-4-3 (RS): EN 61000-4-4 (EFT): EN61000-4-5 (Surge): EN 61000-4-6 (CS): EN 61000-4-8 (PFMF): EN 61000-4-11
Wireless - LA	PTCRB Verizon ATT
Wireless - LE	RED (Radio Equipment Directive -2014/53/EU)

Appendix B - Labels (sample)



Appendix C - pin-outs and Cabling Diagrams

RS-232, RJ45 Serial Ports



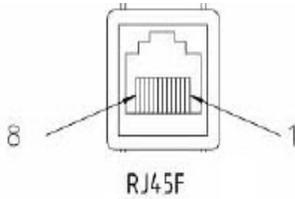
The following table shows the RJ45 serial port pin-out when port is configured as “Straight” (DCE) mode.

Pin #	Signal	Direction
1	CTS	OUT
2	DSR	OUT
3	RX	IN
4	GND	
5	NOT USED	
6	TX	OUT
7	DTR	IN
8	RTS	IN

The following table shows the RJ45 serial port pin-out when port is configured as “Rolled” (DTE) mode.

Pin #	Signal	Direction
1	RTS	OUT
2	DTR	OUT
3	TX	OUT
4	GND	
5	DCD	IN
6	RX	IN
7	DSR	IN
8	CTS	IN

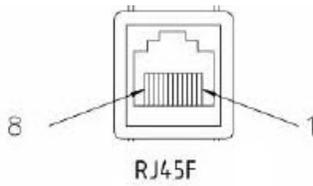
RS-232/422/485, RJ45 Serial Ports



The following table shows the RJ45 serial port pin-out for the different configuration modes for the port.

Pin #	RS-232	RS-422	RS-485 Full-duplex	RS-485 Half-duplex
1	RTS	TxD+	TxD+	DATA+
2	DTR			
3	TxD	TxD-	TxD-	DATA-
4	GND	GND	GND	GND
5	GND	GND	GND	GND
6	RxD	RxD+	RxD+	
7	DSR			
8	CTS	RxD-	RxD-	

RJ45 Console Port

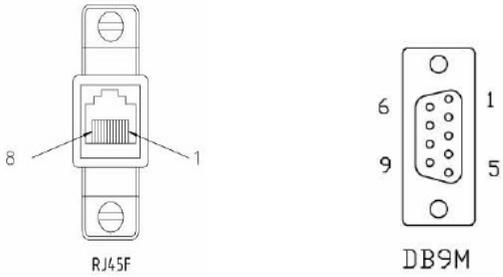


The following table shows the RJ45 console port.

Pin #	Signal	Direction
1	RTS	OUT
2	DTR	OUT
3	TX	OUT
4	GND	
5	GND	
6	RX	IN
7	DSR	IN
8	CTS	IN

RJ45F to DB9M DTE (Straight-through)

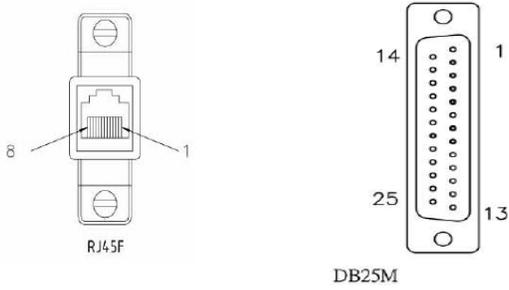
The following diagram shows the IOLAN RJ45→DB9M DTE adapter pin-outs.



RJ45F		DB9M
(RTS) 1	—————	7(RTS)
(DTR)2	—————	4(DTR)
(TX)3	—————	3(TX)
(GND)4	—————	5(GND)
(DCD)5	—————	1(DCD)
(RX) 6	—————	2 (RX)
(DSR) 7	—————	6(DSR)
(CTS) 8	—————	8(CTS)

RJ45F to DB25M (Straight-through Adapter)

The following diagram shows the IOLAN RJ45F→DB25M (DTE) adapter pin-outs.



RJ45F		DB25M
(RTS) 1	—————	4(RTS)
(DTR)2	—————	20(DTR)
(TX)3	—————	2(TX)
(GND)4	—————	7(GND)
(DCD)5	—————	8(DCD)
(RX) 6	—————	3 (RX)
(DSR) 7	—————	6(DSR)
(CTS) 8	—————	5(CTS)

Appendix E - Maintaining your IOLAN

Ensure there is clearance of 50.8mm (2 inches) on all sides of the IOLAN to provide proper airflow through the unit

- Do not use solvents or cleaning agents on this unit
- Keep vent holes clear of debris
- If case gets dirty wipe with a dry cloth
- Ensure all cables are in working condition