

IOLAN SCG Hardware Installation Guide



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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 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: 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.

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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	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 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 connection.

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
- Auto-sensing Ethernet port (RJ45 10/00/1000 Mbps)
- 1 Micro-USB and 1 RS-232 RJ45 Console Admin Port

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 cable
- Quick Start Guide
- Rack mount kit
- 1 meter CAT5 straight-through patch cable
- Adapter to convert from Cisco (RJ45) pin-out to DB9F

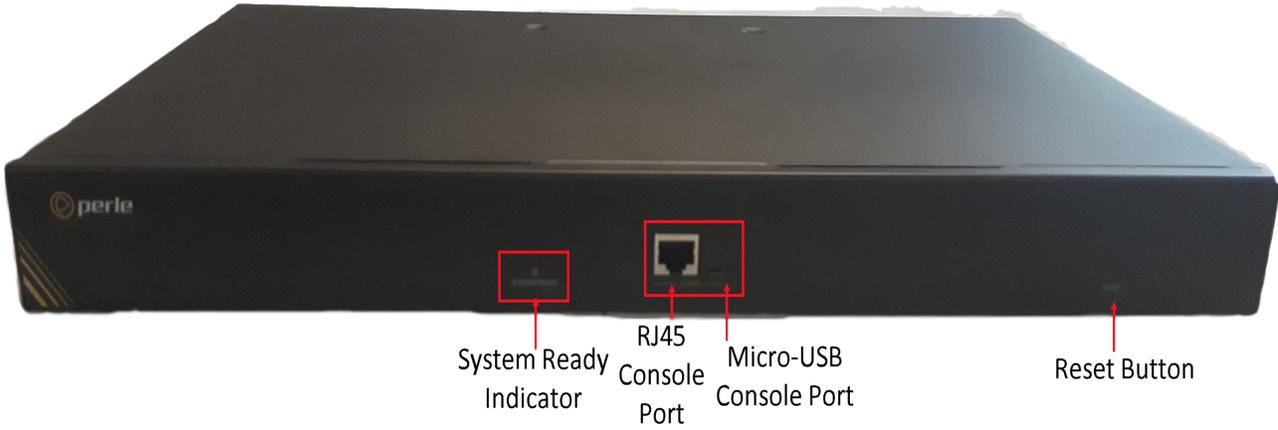
What You Need to Supply

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 to connect the IOLAN unit to the network

IOLAN SCG Components

IOLAN SCG Front View



IOLAN SCG Back View

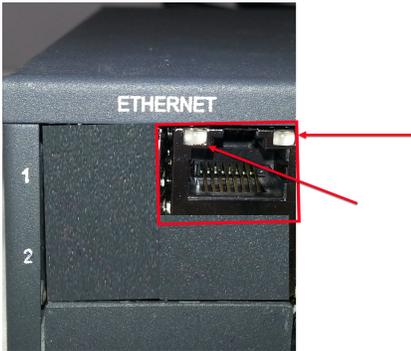
SCG48

IOLAN SCG48



Ethernet LAN Port

The Ethernet RJ45 port provides the standard Ethernet interface speeds of 10/100/1000 Mbps through twisted pair (UTP) cables of up to 100 meters (328ft) in length. 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, 100 or 1000 Mbps link on the Ethernet port.



Ethernet LAN RJ45 10/100/1000

Connect a LAN cable to the Ethernet port on the back of the IOLAN. Cat5e cables are recommended for 1000 Mbps connections.

Ethernet 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

Power

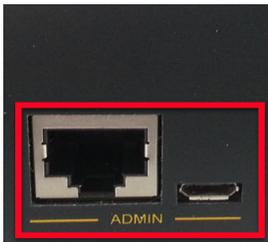
The power connector is located on the back panel of the IOLAN. The power switch should be in the off position when connecting the power cord.



Warning: Before servicing this product ensure power cord has been disconnected.

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 cord, then switch the power switch 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 cord, then set the power switch 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

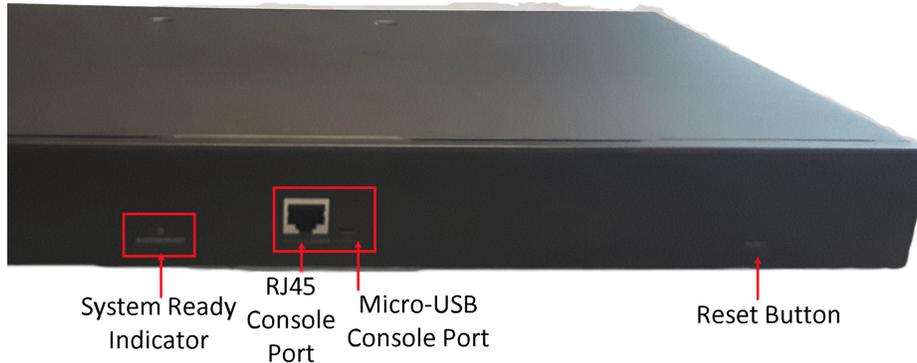
Fast setup mode allow the user to configure basic operating parameters on the IOLAN SCG. Your IOLAN SCG has been shipped to you in “Factory Default” mode. When the IOLAN is in this mode, it will automatically power up in “Fast setup” mode. When in “Fast setup” mode, the system LED will be flashing green. 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.

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.

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.

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.

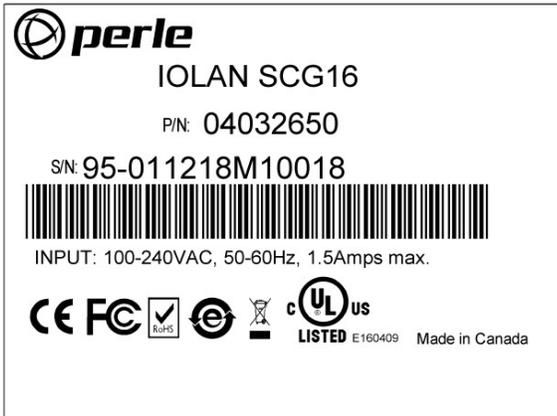
SNMP

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

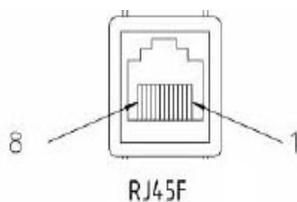
Technical Specifications	
Input power	100-240 VAC, 50-60 Hz, 1.5 Amps max
Interfaces	
RJ45 Serial class RS-232 ports	16, 32, 48 - shielded RJ45 ports
Ethernet Port	Ethernet 10/100/1000 Up to 100 meters (328 ft.) Auto-negotiation Auto-MDI/MDIX Ethernet isolation 1500 V
Console Ports	
	RJ45 DTE - serial 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
	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

Appendix B - Labels (sample)



Appendix C - pin-outs and Cabling Diagrams

RS-232, RJ45 Serial Ports



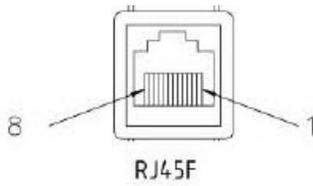
The following table shows the RJ45 serial port pin-out when port is configured as “Straight” (DCE) mode.

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

RJ45 Console Port

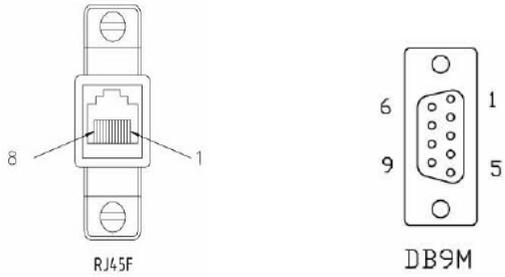


The following table shows the RJ45 console port.

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)

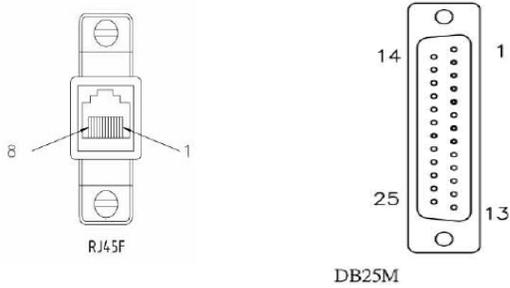
The following diagram shows the IOLAN RJ45→DB9M DTE adapter pin-outs.



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)

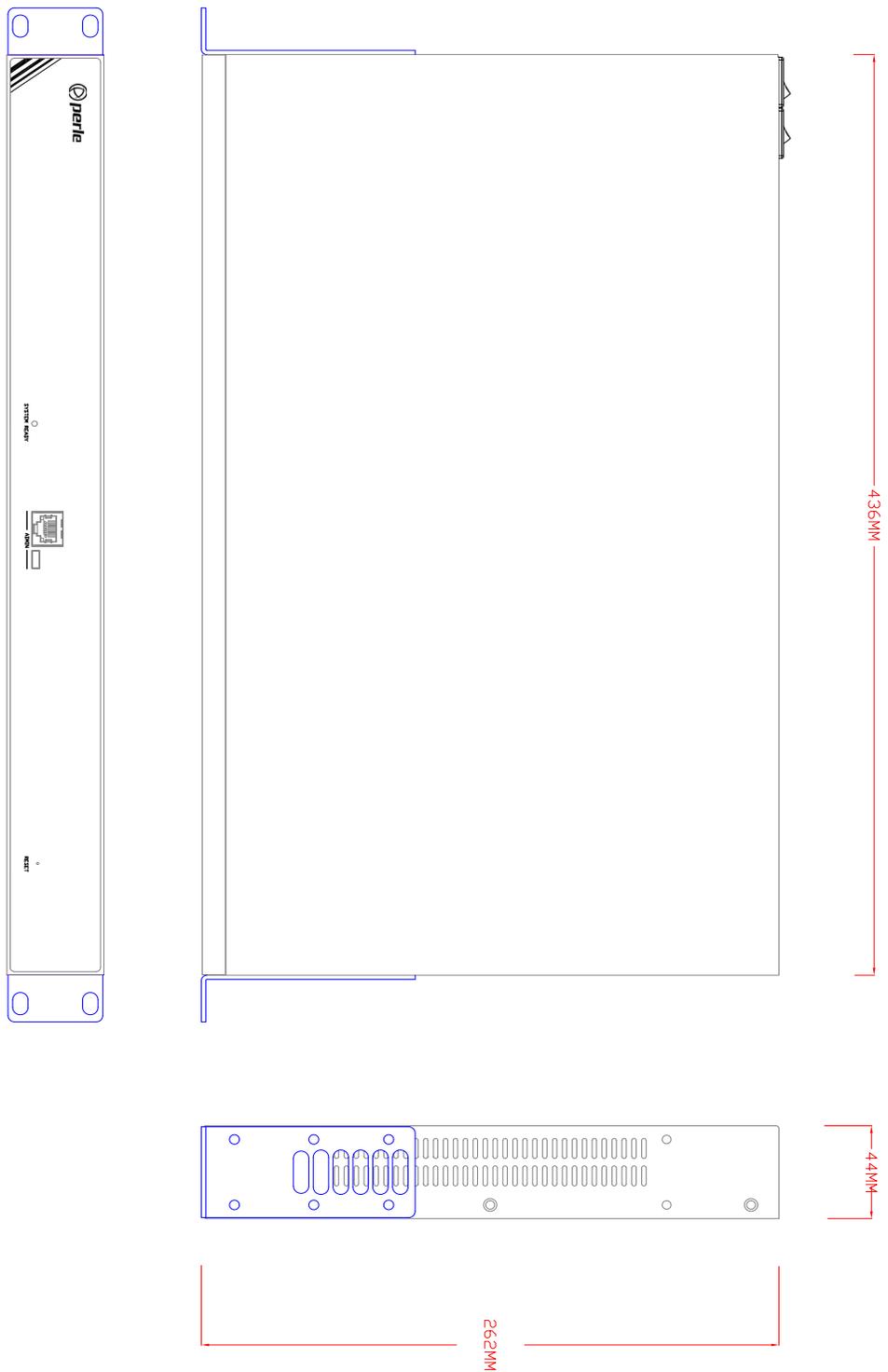
RJ45F to DB25M (Straight-through Adapter)

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 D - Mechanical



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