Industrial 28-port L2 Managed Ethernet Switch

JetNet 6228G Series

Installation Guide

DOCUMENT CHANGE SUMMARY				

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Contents

Important Notes

- Solid state equipment has operational characteristics differing from those of electromechanical equipment.
- Safety Guidelines for the Application, Installation and Maintenance of Solid-State Controls describes some important differences between solid state equipment and hard-wired electromechanical devices.
- Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.
- In no event will Beijer Electronics be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.
- The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Beijer Electronics cannot assume responsibility or liability for actual use based on the examples and diagrams.

CAUTION

✓ **A Caution symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and or damage to the device.**
Read the following Instructions:

- Keep vibrations away from it.
- Products should be used in environments with a pollution index of less than 2.
- Ensure that the installation environment does not exceed 85% humidity.

WARNING

✓ **A Warning symbol indicates a hazardous situation which, if not avoided, could result in damage to the device, death or serious injury.**
Read the following Instructions:

- In order to prevent electric arcs, never assemble or wire the products with power applied. Otherwise, it may result in unexpected and potentially dangerous actions by field devices. Arching poses an explosion risk in hazardous locations. Before assembling or wiring the modules, ensure that the area is non-hazardous or that the system power has been removed accordingly.
- Check the rated voltage and terminal array before wiring. Avoid environments over 50°C of temperature. Avoid placing it directly in the sunlight.

- Ensure that inputs and outputs are made according to the module specification. Wire the system using standard cables.
- In order to avoid an electric shock or malfunction, do not touch any terminal blocks or IO modules while the system is running.
- Keep away from the strange metallic materials not related to the unit and wiring works should be controlled by the electric expert engineer. Else it may cause the unit to a fire, electric shock or malfunction.
- Modules should not be placed near inflammable materials. A fire may result if it is not handled properly.

I. Safety Instruction

I.I. Symbols

CAUTION 	A Caution symbol indicates a potentially hazardous situation to you.
WARNING 	A Warning symbol indicates situations that can be potentially lethal or extremely hazardous to you.
	An Attention symbol indicates potential damage to programs, devices, or data.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

I.II. Safety Notes

WARNING 	The modules are equipped with electronic components that may be destroyed by electrostatic discharge. When handling the modules, ensure that the environment (persons, workplace and packing) is well grounded. Avoid touching conductive components, M-bus and Hot swap-bus pin.

I.III. Certification

Note! For specific information relating to certification of this module type, see the separate certification document summary.

The following certification information applies to JetNet 6228G series models:

- CE compliance
- FCC compliance

Chapter 1. Switch Overview

1.1. Introduction

1.1.1. Overview

The JetNet 6228G series includes 19-inch L2 full Gigabit industrial rackmount switches designed for applications that require high-speed connectivity. With full Gigabit capability, the JetNet 6228G series increases bandwidth to provide high performance and the ability to quickly transfer large amounts of video, voice, and data across a network.

Moreover, the JetNet 6228G series supports harsh environments at -40°C to 75°C and is designed with an industrial EMC grade to ensure proper operation. Also, the JetNet 6228G series has various cyber security and cyber redundancy features, as well as isolated redundant power supplies.

This JetNet 6228G series is ideal for many applications, including transportation, surveillance, and automation.

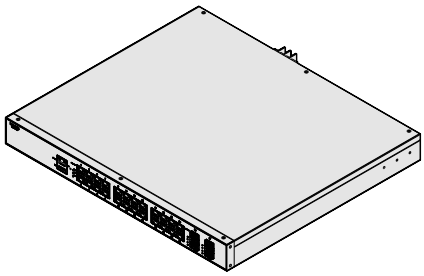
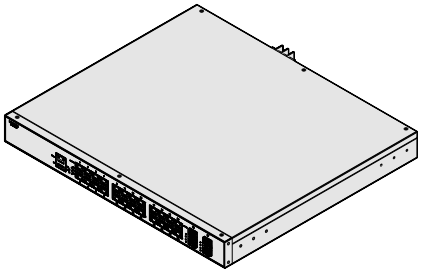
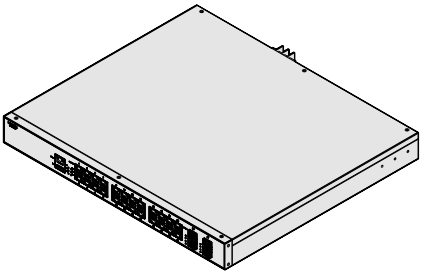
1.1.2. Main Features

The Beijer JetNet 6228G Series, industrial 28-port L2 managed Ethernet switches, features include:

- Rackmount switch with full GbE L2 support
- USB-based firmware upgrading
- Multiple redundancy protocols such as MSR, MSTP, and RSTP are supported
- Isolated redundant power inputs with VDC or 110/220 VAC power
- Compliant with EN50121-4
- Fanless operation from -40°C to 75°C (-40°F~167°F)

1.1.3. Switch Models

The JetNet 6228G series is available in the following models: JetNet 6228G-4F-AC, JetNet 6228G-4F-2DC, and JetNet 6228G-4F-AC-2DC. The following figures depict the models.

Switch Model	Description	Image
JetNet 6228G-4F-AC	Industrial 28-port Full Gigabit with 4-port SFP Managed Ethernet Switch, AC input	
JetNet 6228G-4F-2DC	Industrial 28-port Full Gigabit with 4-port SFP Managed Ethernet Switch, Dual DC Inputs	
JetNet 6228G-4F-AC-2DC	Industrial 28-port Full Gigabit with 4-port SFP Managed Ethernet Switch, AC and Dual DC Input	
Packing	Includes: • JetNet 6228G • Rackmount kit • Quick Installation Guide **Note:** Please download the User Manual from the website.	

1.2. Technical Specifications

1.2.1. JetNet 6288G Series Specifications

Specifications	Description	
Interface	RJ-45 Port	24 x 10/100/1000 Mbps
	SFP Port	4 x 100/1000 Mbps
	Console Port	RS-232 (RJ-45 connector)
	Storage	USB (Type A)
Performance	Switch Technology	Store and Forward technology with 56 Gbps switch fabric
	CPU Performance	1.2GHzs ARM Cortex-A9 processor
	System Memory	128 MB NOR flash, 1GB system RAM
	Transfer packet Size	Up to 9K bytes Jumbo Frame
	MAC address Table	16K
	Packet Buffer	512 KB
	Transfer Performance	14,880 pps for Ethernet; 148,800 pps for Fast Ethernet; 1,488,100 pps for Gigabit Ethernet
Technology	Standard	• IEEE 802.3 10Base-T • IEEE 802.3u 100Base-TX • IEEE 802.3ab for 1000BaseT(X) • IEEE 802.3z Gigabit Ethernet Fiber • IEEE 802.3x Flow Control and Back Pressure • IEEE 802.1AB Link Layer Discovery Protocol (LLDP) • IEEE 802.1Q VLAN and GVRP • IEEE 802.1D:2004 Rapid Spanning Tree (RSTP) • IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) • IEEE802.3ad Link Aggregation Control Protocol (LACP) • IEEE 802.1x Port Based Network Access Control • IEEE 802.1p class of service
	Configuration, monitoring interface	• SNMP V1/V2c/V3 with SNMP Trap (4 Trap Stations), RMON Group 1 • Local RJ-45/RS-232 connector with Cisco like command • USB Firmware upgrade

Specifications	Description	
	System Manage Secure	• Telnet/Local Console support command like interface with Cisco like commands. • Management Device Login Switch System by Remote RADIUS /TACACS+ account/password, key for RADIUS Server authentication
	Management Utility	Management utility with IEEE 802.1AB Link Layer Protocol for Device finding and Link Topology Discovery
	Network Time Protocol	NTP protocol with daylight saving and localize time sync
	System Log	Local or remote log server with authentication
	Alarm	1 alarm set, current carrying capability of 1A@24V Power (PWR1, PWR2, PWR3) failure
Network Performance	Port Configuration	Port Link Speed, Link Mode, Link Status and Port
	Port Trunk/ Link	IEEE 802.3ad port aggregation and static port trunk, maximum 8 trunk groups
	VLAN	IEEE 802.1Q tag VLAN with 4K VLAN/GVRP entries VLAN ID Range: 1-4094
	Class of Service	IEEE 802.1p class of service, 8 priority queues/port
	Traffic Prioritize	Supports 8 physical queues with weighted fair queuing (WRR) or Strict Priority Schemer, which follows IEEE 802.1p CoS tag and IPv4 Type of Service/Differ information to prioritize the traffic of your industrial network
	IGMP Snooping	IGMP Snooping v1/v2 for multicast filtering and IGMP Query mode, supports unknown multicast forwarding policies- Drop, Flooding and Forward to route port Max 256 groups
	Rate Control	Egress rate limit
	Port Mirroring	One-to-one traffic mirror monitoring
	DHCP	DHCP Client/Server with IP & MAC address binding
	Advanced Cyber Security	IEEE 802.1x, DHCP Snooping, Access Control List (ACL), TACACS+
Network Redundancy	Ring Redundancy	Multiple Super Ring™ Technology, Includes Rapid Super Ring, Rapid Dual Homing, SuperChain™
	Rapid Dual Homing	Multiple uplink paths to one or multiple upper Switch.
	SuperChain™	Flexible, scalable ring technology, compatibility, and easy configurable: Border Switch and Member Switch
	Rapid Spanning Tree	IEEE 802.1D-2004 Rapid Spanning Tree Protocol. Compatible with Legacy Spanning Tree and IEEE 802.1w

Specifications	Description	
	Multiple Spanning Tree	IEEE 802.1s Multiple Spanning Tree, each MSTP instance can include one or more VLANs, and also supports multiple RSTP deployed in a VLAN or multiple VLANs
Power Requirement	AC Power Input	110/220 VAC (100-240VAC)
	DC Power Input	2 x 18-75VDC
	Power Consumption	16.32W (48VDC), 34.56W (240VAC)
Mechanical	Installation	19” 1U Rackmount
	Enclosure Material	Steel Metal
	Dimension (H x W x D)	43.8 x 431 x 375 mm 17.24 x 16.976 x 14.77 in.
	Weight	7.4kg (16.31 lbs) with package
	Ingress Protection	Robust IP40
Environmental	Operating Temperature	-40˚C~75˚C (-40˚F ~ 167˚F)
	Operating Humidity	10%~95%, Non-Condensing
	Storage Temperature	-40˚C~85˚C (-40˚F ~ 185˚F)
	Hi-Pot Insulation	AC 1.5KV for Ethernet Interface to Power, Power to Case
Regulation	Rail Traffic	EN50121-4
	EMC	• FCC Class A, CE • EN 50121-4 • EN 61000-6-4 • EN IEC 61000-3-2 • EN 61000-3-3 • EN 61000-4-2 • EN 61000-4-3 • EN 61000-4-4 • EN 61000-4-5 • EN 61000-4-6 • EN 61000-4-8 • EN 61000-4-9
	Vibration	IEC 60068-2-6, IEC 60068-2-36
	Shock	IEC 60068-2-27
	Free Fall	IEC 60068-2-32
	MTBF	570,639 hrs
	Warranty	5 Years

* Maximum power consumption values are measured under a 100% load test and should be used as estimates.

1.3. Front Panel

Described in this section are the front panel components of the JetNet 6228G series switches.

1.3.1. JetNet 6228G-4F-AC

The LEDs and ports are located on the front panel of the switch as illustrated in the following illustrations.

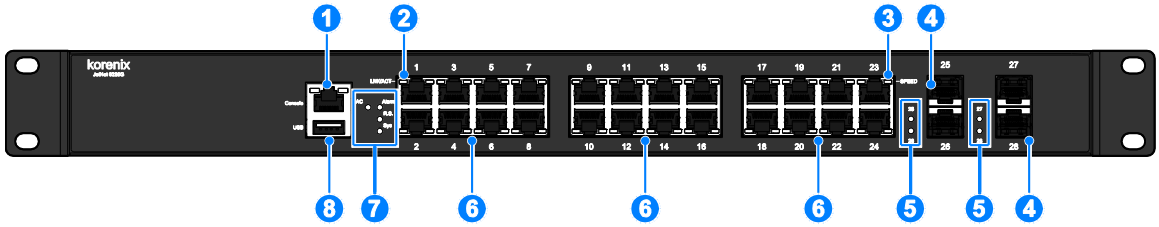


Figure 3 Front Panel of 28-Port JetNet 6228G-4F-AC

No.	Item	Description
1.	RJ-45 console port	Console/Terminal Port (RJ45) for device management/debug
2.	LNK / ACT LED	See Front Panel LEDs on page 18 for further details.
3.	Speed LEDs	See Front Panel LEDs on page 18 for further details.
4.	SFP module slot	SFP ports enable the switch to communicate with other switches through modules.
5.	SFP LEDs	See Front Panel LEDs on page 18 for further details.
6.	24 Gigabit ports	Multigigabit Ethernet ports support speeds of 100 Mbps and 1 Gbps on Cat 5e cables.
7.	System LEDs	See Front Panel LEDs on page 18 for further details.
8.	USB Type A port	USB ports connect to USB devices for restoring firmware images.

1.3.2. JetNet 6228G-4F-2DC

The LEDs and ports are located on the front panel of the switch as illustrated in the following illustrations.

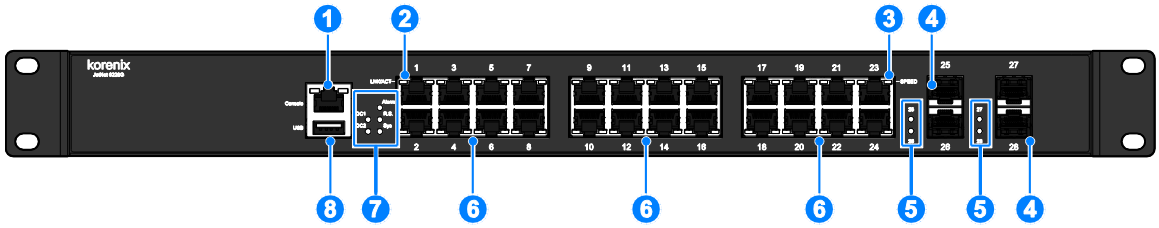


Figure 3 Front Panel of 28-Port JetNet 6228G-4F-2DC

No.	Item	Description
1.	RJ-45 console port	Console/Terminal Port (RJ45) for device management and debug
2.	LNK / ACT LED	See Front Panel LEDs on page 18 for further details.
3.	Speed LEDs	See Front Panel LEDs on page 18 for further details.
4.	SFP module slot	SFP ports enable the switch to communicate with other switches through modules.
5.	SFP LEDs	See Front Panel LEDs on page 18 for further details.
6.	24 Gigabit ports	Multigigabit Ethernet ports support speeds of 100 Mbps and 1 Gbps on Cat 5e cables.
7.	System LEDs	See Front Panel LEDs on page 18 for further details.
8.	USB Type A port	USB ports connect to USB devices for restoring firmware images.

1.3.3. JetNet 6228G-4F-AC-2DC

The LEDs and ports are located on the front panel of the switch as illustrated in the following illustrations.

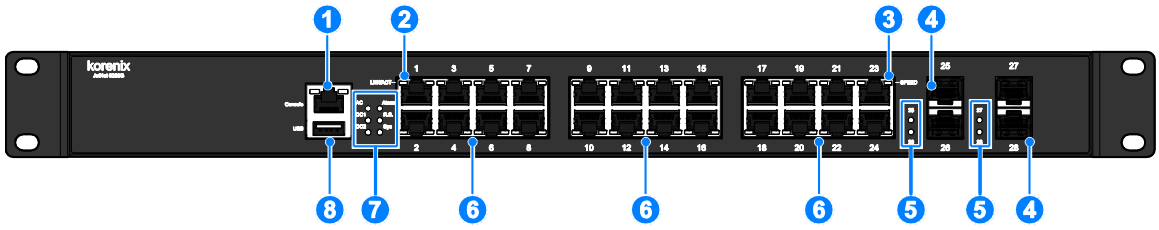


Figure 3 Front Panel of 28-Port JetNet 6228G-4F-AC-2DC

No.	Item	Description
1.	RJ-45 console port	Console/Terminal Port (RJ45) for device management and debug
2.	LNK / ACT LED	See Front Panel LEDs on page 18 for further details.
3.	Speed LEDs	See Front Panel LEDs on page 18 for further details.
4.	SFP module slot	SFP ports enable the switch to communicate with other switches through modules.
5.	SFP LEDs	See Front Panel LEDs on page 18 for further details.
6.	24 Gigabit ports	Multigigabit Ethernet ports support speeds of 100 Mbps and 1 Gbps on Cat 5e cables.
7.	System LEDs	See Front Panel LEDs on page 18 for further details.
8.	USB Type A port	USB ports connect to USB devices for restoring firmware images.

1.3.4. Front Panel LEDs

The system LEDs are used to monitor the switch activity and performance.

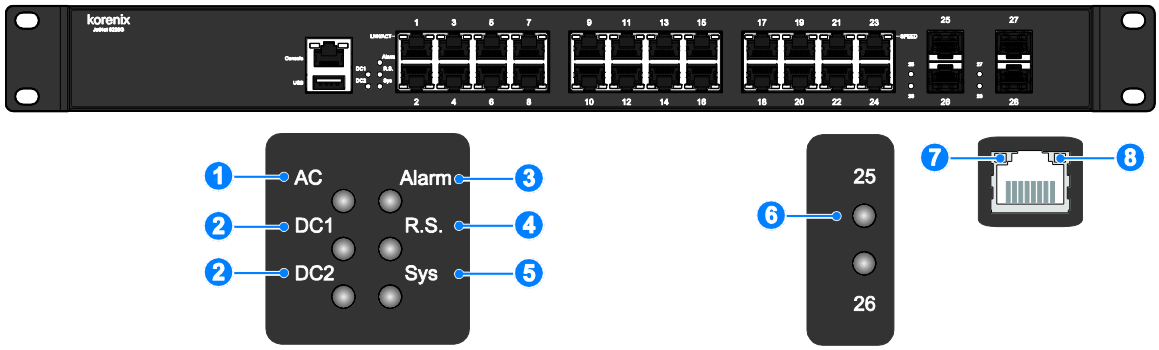


Figure 3 Front Panel LEDs of 28-Port JetNet 6228G Series

No.	Item	Description
1.	Power LED	AC: Available only on AC models. Solid green: Device is powered on. Off: Device is powered off
2.	Power LED	DC1 / DC2: Available only on DC models. Solid green: Device is powered on. Off: Device is powered off
3.	Alarm	Solid red: Alarm trigger enabled Off: Alarm is not triggered, no failure detected
4.	R.S.	Ring Status indicator Solid green: Ring failure detected Off: No failure detected
5.	System	Solid green: System is enabled Off: System is powered off, failure, or in boot up process
6.	SFP port	Solid green: Link established Flashing green: Packet transmitting/receiving Off: No Ethernet link or link speed 100Mbit/s Solid amber: Link speed 1 Gbit/s
7.	Link / Act	Solid amber: Ethernet link established Flashing amber: Packet transmitting/receiving Off: Link is inactive
8.	Speed (Gigabit), status	Solid green: Connection established to the port, 1000 Mbps link established Off: Connection speed is under 1000 Mbps or no connection

1.4. Rear Panel

The power inputs and relay connectors are located on the rear panel of the switch as illustrated in the following illustrations.

Figure 3 Rear Panel of 28-Port JetNet 6228G Series

No.	Item	Description
1.	AC power socket	AC socket available only on AC models. Connect the switch to AC power.
2.	LNK / ACT LED	See Front Panel LEDs on page 18 for further details.
3.	DC power socket	DC socket available only on DC models. Wire for DC power source. The switch requires 18-75VDC, max 1A power source.
4.	Ground terminal	Connect to a ground source to provide local earth potential.

1.5. Dimensions

The power inputs and relay connectors are located on the rear panel of the switch as illustrated in the following illustrations.

Note! For demonstration purposes, the Dimensions view illustrates a single JetNet 6288G model.

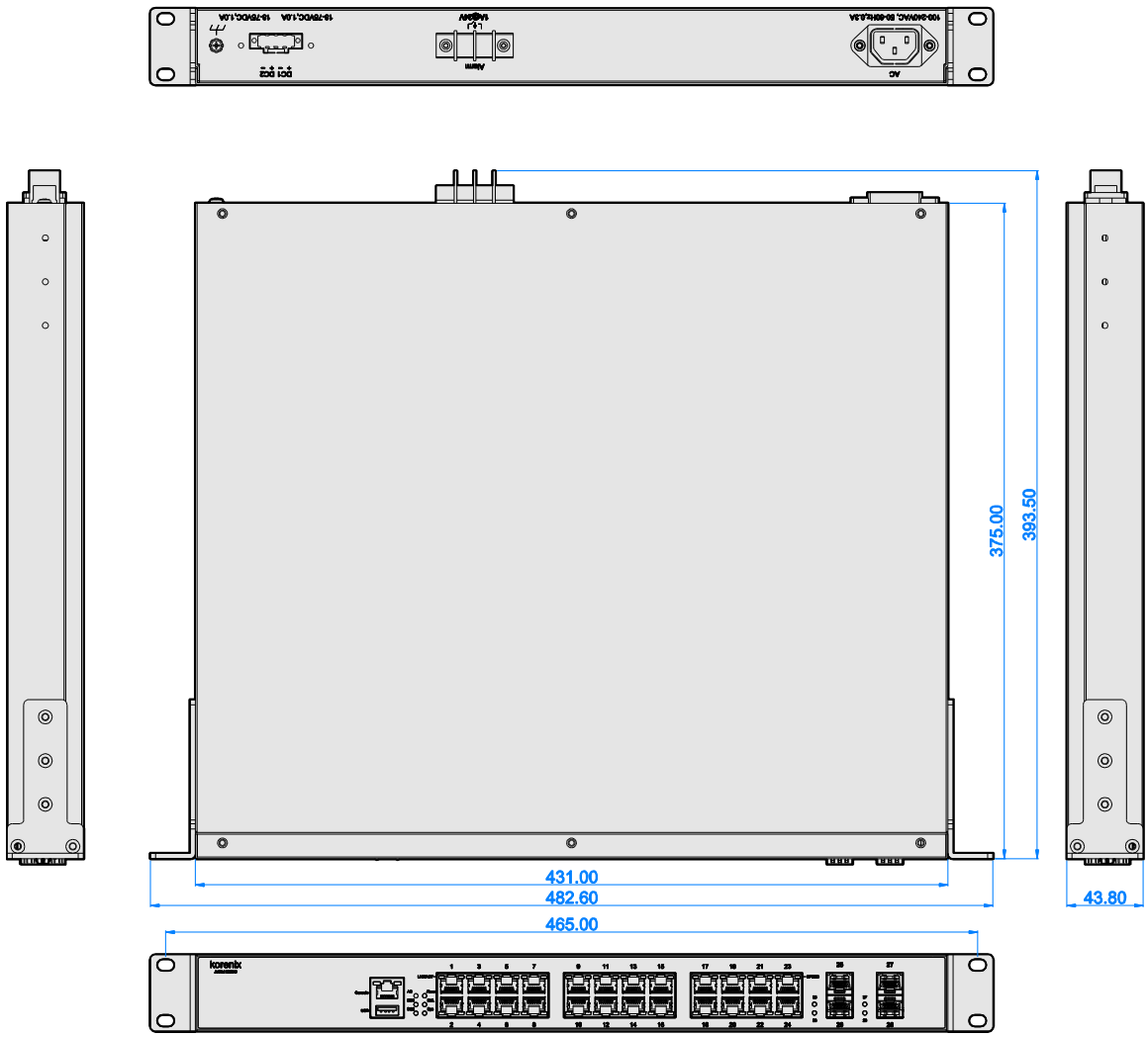


Figure 3 Dimensions of 28-Port JetNet 6228G Series

Chapter 2. Hardware Installation

2.1. Electrical Safety Information

1 Voltage, frequency, and current requirements must be met according to the manufacturer's label. Using a power source other than those specified may cause improper operation, damage to the equipment, or pose a fire hazard.

2 This equipment contains no user-serviceable parts. Service should only be provided by qualified technicians.

3 Power cords for this equipment come with an integral safety ground wire that can be connected to grounded safety outlets.

4 It is not recommended to replace the power cord with one that is not approved by the manufacturer. Connecting an adapter plug to a 2-wire outlet will defeat the continuity of the grounding wire.

5 Modification or misuse of the ground wire can cause serious injury or death; the ground wire is required as part of the safety certification.

6 In case of questions regarding the installation, contact a qualified electrician or the manufacturer.

7 AC adapters with Listed certification provide protective earthing. Short-circuit backup protection shall be provided in the building installation.

8 Local and national wiring regulations and guidelines must be followed when installing protective bonding.

2.2. Environment and Enclosure Guidelines

Before installation, review these environmental and enclosure guidelines:

In accordance with IEC publication 60664-1, this equipment is intended for use in an industrial environment with pollution degree 2, overvoltage Category II applications, and at altitudes up to 9842 feet (3 km). As per IEC/CISPR Publication 11, this equipment is classified as Group 1, Class A industrial equipment. It may be difficult to ensure electromagnetic compatibility in other environments without appropriate precautions due to conducted and radiated disturbances. This equipment is provided as open-type equipment. Enclosures must be designed appropriately to prevent personal injury resulting from access to live parts and to suit the specific environmental conditions that will be present. In order to prevent or minimize flame spread, the enclosure should have flame-retardant properties that meet a flame-spread rating of 5VA, V2, V1, V0 (or equivalent) if nonmetallic. Enclosures must only be accessible with a tool for their interior. The subsequent sections of this publication may contain information on specific enclosure-type ratings that must be

met to obtain certain product safety certifications.

2.3. Package Contents

After unpacking the device, validate the contents to ensure you have received all the included components.

- Jetnet 6228G series: JetNet 6228G-4F-AC, JetNet 6228G-4F-2DC, or JetNet 6228G-4F-AC-2DC
- AC Power Cord (Dependent on country or region)
- Rack mounting kit — includes two brackets and ten screws
- Console cable — RJ-45 to DB-9
- Documentation — Quick Installation Guide

2.4. Validating Operational Function

Ensure the switch passes POST before installing it in a rack, on a wall, or on a table or shelf.

Depending on the switch, you may need to use one of the following methods to power it on:

A). AC power supported models - plug one end of the AC power cord into the switch AC power connector, and the other end into an AC power outlet.

B). DC power supported models - connect a ground wire to the switch, and then connect a DC power cable to the switch.

During the switch POST process, it initiates a series of tests to ensure that it functions correctly. The **Sys** LED blinks green, while the other LEDs remain solid green.

A successful POST results in the **Sys** LED remaining green. The other LEDs turn off and reflect the switch operating status. A failed POST results in the **Sys** LED turning amber.

After a successful POST, unplug the power cord from the switch and install it in a rack, on a table, or on a shelf. POST failures are usually fatal. Contact your technical support representative if you experience a POST failure.

2.5. Installing the Switch

2.5.1. Installation Requirements

- A 19-inch wide rack with a minimum height of 1U.
- Use Category 5 (or higher) UTP cabling for indoor applications.
- In outdoor applications, shielded Category 5 (or greater) cabling should be used for all wired Ethernet connections and should be grounded via the power supply's AC ground.

- It is recommended that you use industrial-grade, shielded Ethernet cables to protect your networks from harmful outdoor environments and destructive ESD events.
- Tools for hardware installation. The rackmount kit contains two brackets and ten (10) screws for rack mounting.

Note! Although cabling may be run outdoors, the device should be protected by an enclosure.

2.5.2. Installing Guidelines

Make sure the following guidelines are met when selecting a location for the switch:

In order to ensure that the switch front and rear panels are clear, the following conditions must be met:

- The ports are accessible without restriction, allowing unrestricted cabling.
- The front-panel LEDs are easy to read.
- The power cord can reach the switch rear panel connector from the power outlet.
- Electrical noise sources such as radios, power lines, and fluorescent lighting fixtures should be kept away from the cabling. Ensure that the cabling is safe from other devices that might damage it.
- In the case of 10/100/1000 fixed ports, the cable length from the switch to the device connected cannot exceed 100 meters (328 feet).
- There is no restriction on airflow around the switch and through the vents.
- This unit is not exposed to temperatures up to 167°F (75°C). There is a possibility that the temperature around the switch will be higher than normal if it is installed in a closed cabinet or multirack assembly.
- Fan and blowers in cooling mechanisms can draw dust and other particles, resulting in contaminant buildup inside the chassis, resulting in system malfunction. In order to ensure the best performance of this equipment, it must be installed in a dust-free environment (e.g., where flakes of metal from construction activities are not present).
- It is important that the humidity around the switch does not exceed 90%.

2.5.3. Installing on a Rack

Rack mount brackets are included with the switch for installation in a 19-inch rack.

The switch does not come with a bracket kit for installation in racks other than 19 inches.

WARNING 	In order to avoid bodily injury when mounting or servicing this unit in a rack, special precautions must be taken. To ensure your safety, follow these guidelines: • In cases where this unit is the only one in the rack, it should be mounted at the bottom. • Install the heaviest component at the bottom of a partially filled rack when mounting this unit. • Before mounting or servicing the unit in the rack, install any stabilizing devices provided with the rack.

The following figure depicts the standard 19-inch brackets included with the device.

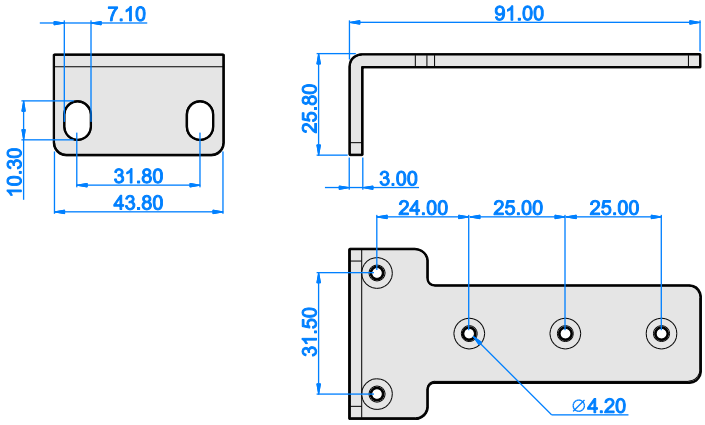


Figure 3 Standard 19-inch Rail Mounting Brackets

2.5.4. Connecting the Rack-Mount Brackets

1 Unpack the contents from the package and check the contents.

2 Attach the Rack-Mount Brackets to the switch as illustrated.

3 Align the long side of the bracket to each side of the switch, and secure the bracket to the switch with the provided screws.

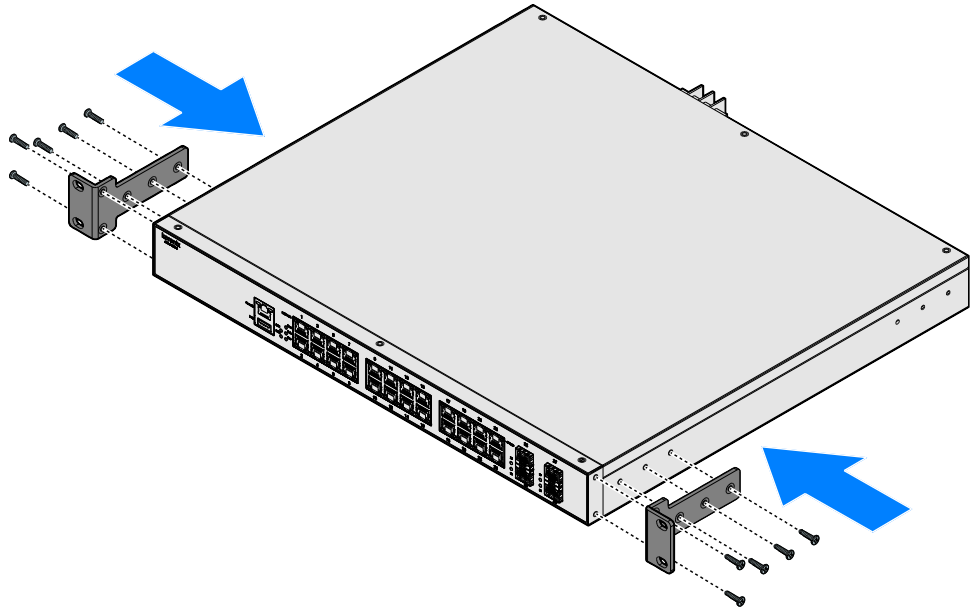


Figure 3 Attaching Mounting Brackets in a Switch

4 Once the brackets are installed and secured, the switch can be installed into the rack.

2.5.4.1.Mounting a Switch in a Rack

1 Based on the rack plan, mark the position in the rack where the switch is to be installed.

2 Raise the switch into the rack location as marked in the previous step. Ensure it is aligned with the marked holes.

3 Slide the switch and slide it in until it is flush in the rack. Secure the switch in the rack with the provided mounting screws.

4 Slide the switch into the rack, see the following figure.

5 Use the supplied screws to attach the switch to the rack.

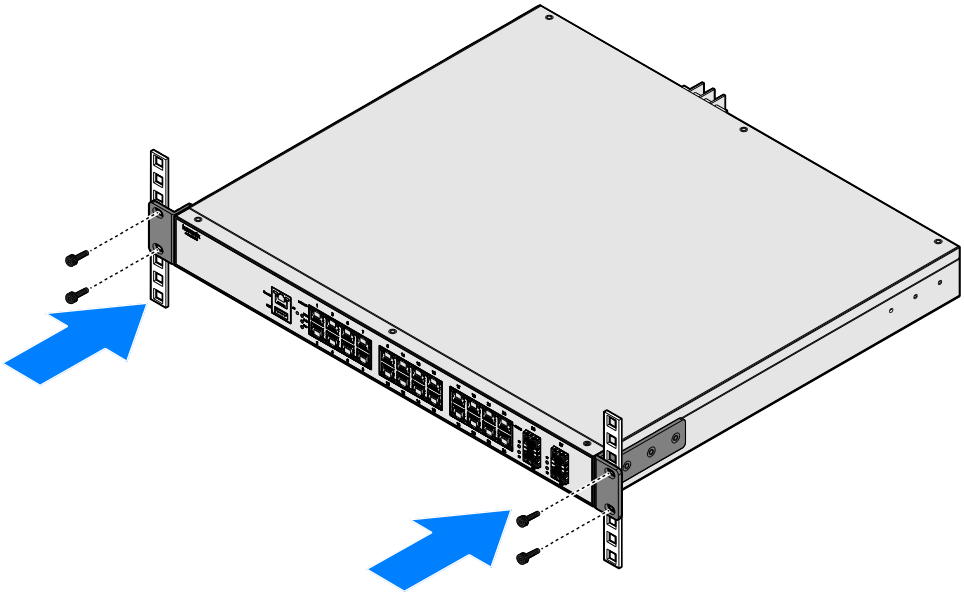


Figure 3 Mounting a Switch in a Rack

2.5.5. Connecting Ethernet Cables

The JetNet Series come with 24 RJ-45 Fast Ethernet ports, which support both 10Base-T and 100Base-TX. Each fast Ethernet port will automatically negotiate a link speed and duplex mode based on the signal received from connected devices. In order to connect another switch, hub or workstation without changing straight-through or crossover cables, users can use auto MDI/MDIX.

Note! In crossover cables, the TX and RX lines are cross-connected to the respective ends of the opposite cable.

Gigabit Ethernet and 10/100/1000 Ethernet port configurations change depending on the attached device. The switch supports autonegotiation. If the speed and duplex parameters are manually set or the devices do not support autonegotiation, performance can be reduced.
To maximize performance, choose one of these methods for configuring the Ethernet ports:

- Allow the ports to negotiate both speed and duplex.
- Ensure that both ends of the connection are set to the same interface speed and duplex parameters.

2.5.5.1.Ethernet Cable Wiring

You should use data-quality twisted-pair cabling (rated CAT5 or higher) for RJ45 connectors. For optimal performance, shielded cabling should be used. Additional protection may be provided by shielded cabling.

Straight Through Cable Wiring			Cross-over Cable Wiring		
Switch	**Direction**	**Router or PC**	**Switch**	**Direction**	**Switch**
Pin 1 RD+	→	Pin 1 TD+	Pin 1 RD+	←	Pin 3 TD+
Pin 2 RD-	→	Pin 2 TD-	Pin 2 RD-	←	Pin 6 TD-
Pin 3 TD+	→	Pin 3 RD+	Pin 3 TD+	→	Pin 1 RD+
Pin 6 TD-	→	Pin 6 RD-	Pin 6 TD-	→	Pin 2 RD-

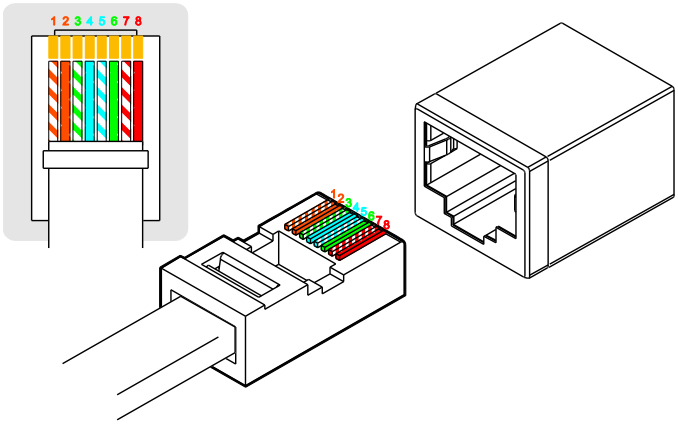


Figure 3 Mounting a Switch in a Rack

Note!! Ethernet cables use pins 1, 2, 3, and 6 of an 8-pin RJ-45 connector. The signals of these pins are converted by the automatic MDI-X function, as shown in the table below:

Ethernet Cable Pin Definition		
Pin MDI-X	Signals	MDI Signals
1	RD+	TD+
2	RD-	TD-
3	TD+	RD+
6	TD-	RD-

Connect one side of an Ethernet cable into any switch port and connect the other side to your attached device. The LNK LED will light up when the cable is correctly connected.
Refer to the LED Indicators section for descriptions of each LED indicator. Always make sure that the cables between the switches and attached devices (e.g. switch, hub, or workstation) are less than 100 meters (328 feet).
The wiring cable types are listed as follows:

- 10Base-T : 2-pair UTP/STP Cat. 3, 4, 5 cable, EIA/TIA-568 100-ohm (100m)
- 100Base-TX: 2-pair UTP/STP Cat. 5 cable, EIA/TIA-568 100-ohm (100m)
- 1000Base-TX: 4-pair UTP/STP Cat. 5 cable, EIA/TIA-568 100-ohm (100m)
- IEEE 802.3af : 4-pair UTP/STP Cat. 5 cable, EIA/TIA-568 100-ohm (100m)
- IEEE 802.3at : 4-pair UTP/STP Cat. 5e / 6 cable, EIA/TIA-568 100-ohm (100m)

2.5.5.2.Data and Power Ports

There are 24 Ethernet ports (ports 1-24) on the JetNet series that are compatible with IEEE802.3af (PoE) and IEEE802.3at (PoE Plus). As well as 10/100BaseTX ports, PoE ports are also equipped with 48 VDC at 350mA (max 15.4W/port) and 53 VDC at 606mA (max 30W/port), automatic sensing and automatic power off when cables are removed. An assignment of RJ45 PoE pinout can be found in the following table.

10/100BaseTx PoE Pin-out	
Pin	**Description**
1	RX + and V port -
2	RX - and V port -
3	TX + and V port +
6	TX – and V port +
4, 5, 7, 8	Not applicable

2.5.6. Connecting a Serial Cable

In addition to the primary management system, a JetNet switch provides a secondary management system. A wired connection can be established between the switch's RJ45 port (RJ45) and the COM port of a PC (9-pin D-sub female).

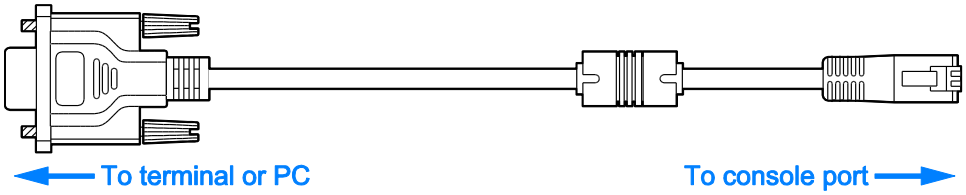


Figure 3 Serial Console Cable

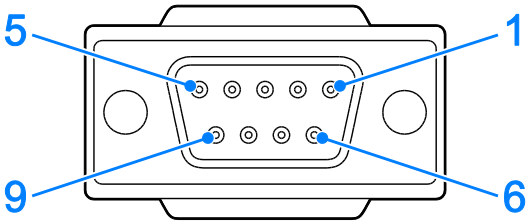


Figure 3 D-sub 9-pin Position

DB9 Connector	RJ45 Connector
NC	1 Orange / White
NC	2 Orange
2	3 Green / White
NC	4 Blue
5	5 Blue / White
3	6 Green
NC	7 Brown / White
NC	8 Brown

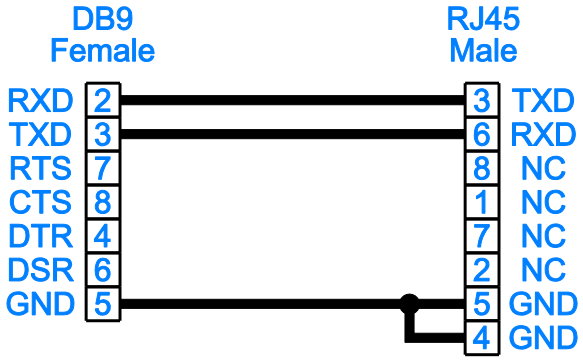


Figure 3 DB9 to RJ45 Pin Assignment

CAUTION 	SFP or SFP+ modules can be damaged by removing and installing them repeatedly. Whenever possible, don't remove and reinstall modules more often than necessary.

2.5.7. Connecting and Disconnecting SFP Modules

2.5.7.1.Before you Begin

Follow these guidelines when installing SFP or SFP+ modules:

- Make sure to leave the rubber plugs on the modules until you're ready to connect the SFP module. Caps and plugs protect module ports and cables from contamination.
- If you are connecting cables to a switch or other device, follow your normal board and component handling procedures to prevent ESD damage.

2.5.7.2.Connecting a 1000BASE-T SFP Module

For 1000BASE-T, be sure to use a cable with four twisted pairs, Category 5 or higher.

CAUTION 	Be sure to follow component handling procedures in order to prevent ESD damage

Fiber ports and cables are very simple to use. Let us say that you are connecting devices I and II. Optical signals do not require a circuit to transmit data like electrical signals. In order to achieve full-duplex transmission, one of the optical lines transmits data from device I to device II, and the

other optical line transmits data from device II to device I.

Ensure that the Tx (transmit) port of device I is connected to the Rx (receive) port of device II, and that the Rx (receive) port of device I is connected to the Tx (transmit) port of device II. Make sure the two sides of a cable are labelled the same way (A1-to-A2 and B1-to-B2).

1 Attach an ESD wrist strap to your wrist and a bare metal surface.

2 Remove the rubber plug from the SFP module. Keep the rubber plug for future use.

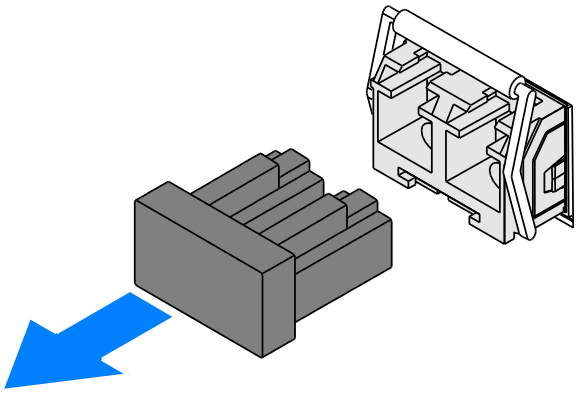


Figure 3 Removing a Rubber Plug from an SFP Module

Note! SFP slots are protected from dust contamination by dust plugs. Do not remove the dust plug from the SFP slot if you do not plan to install the transceiver at this time.

3 Place the bale-clasp latch on top of the SFP transceiver, as shown in the following image.

4 Make sure the triangular marking (TX and RX) on the slot is aligned with the bottom of the transceiver.

5 Once the SFP transceiver has been inserted into the slot, push it in until it snaps in place.

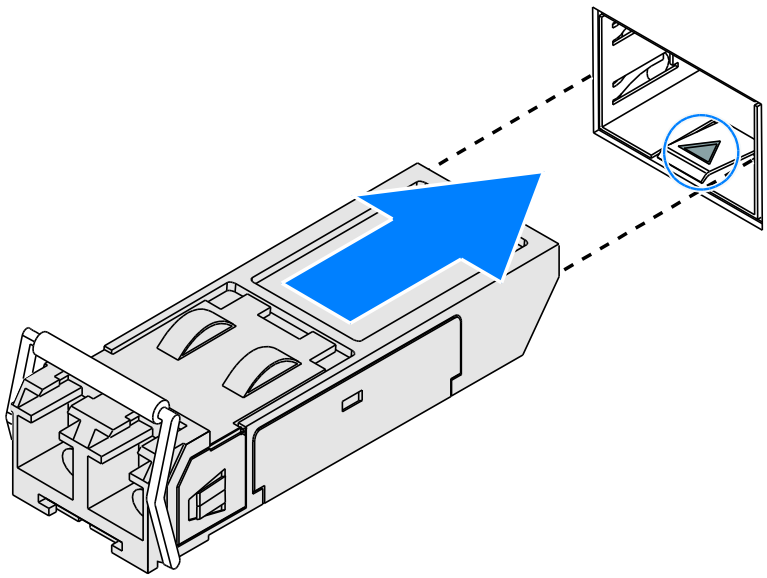


Figure 3 Installing an SFP Module

6 Close the bale-clasp latch.

7 Insert one end of the fiber cable into the SFP port on the module. The connector snaps into place and locks.

8 Insert the other end of the cable into the target device.

9 Monitor the port status LED.

- A green LED indicates that the switch and target device are connected.
- The LED turns amber while the STP discovers the network topology and searches for loops. After 30 seconds, the port LED turns green.
- If the LED is off, ensure the target device is powered up. Otherwise, check the cable and cable connection for any issues.

10 Insert the fiber optic cable into the transceiver. The cable snaps in place when correctly connected.

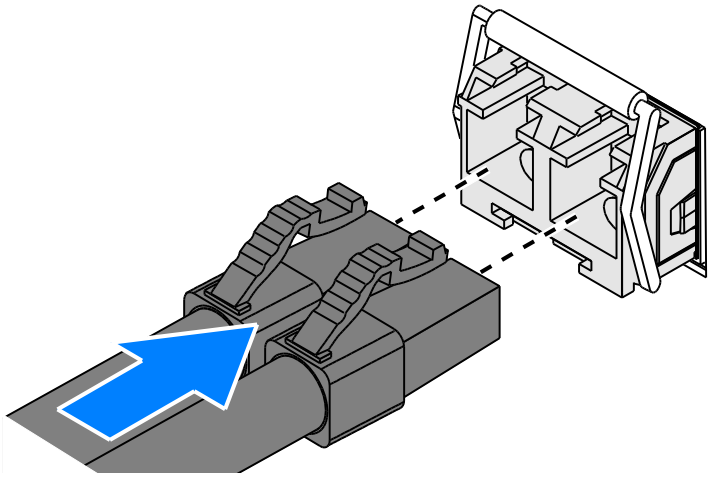


Figure 3 Connecting a Fiber Optic Cable

2.5.7.3.Disconnecting an 1000BASE-T SFP Module

To disconnect an SFP module, see the following instructions:

1 Locate the locking clips on the upper side of the optic cable, and hold it down to disengage the cable. Pull the optic cable out to release it from the transceiver.

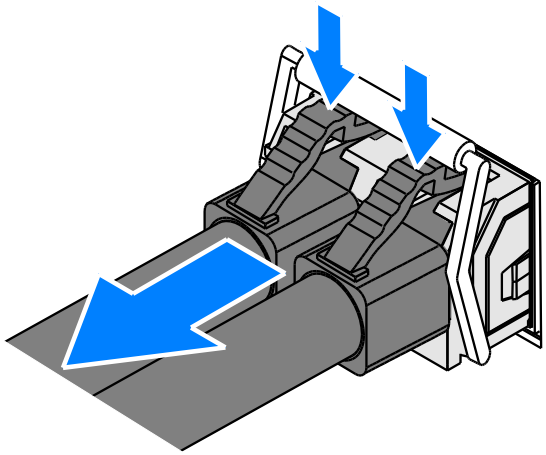


Figure 3 Disengaging the Optic Cable from the Module

2 Hold the handle on the transceiver to pull the module out of the port.

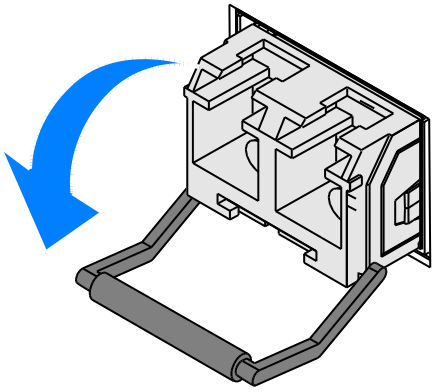


Figure 3 Disconnecting an SFP Module

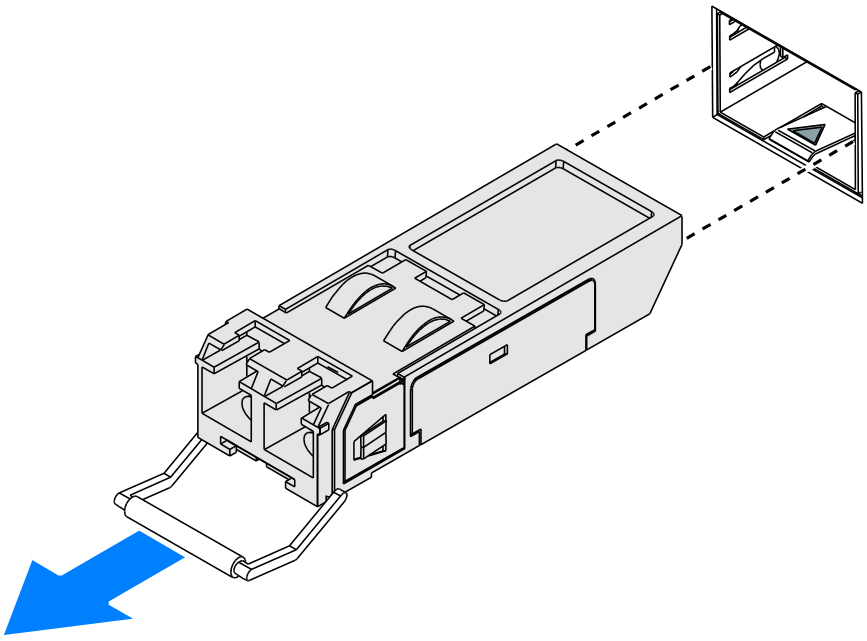


Figure 3 Disconnecting an SFP Module

ATTENTION	The rubber plug should be replaced if the transceiver is not installed. Rubber plugs prevent dust contamination of hardware.

2.5.8. Connecting Power Inputs

2.5.8.1.Overview

WARNING 	Before servicing or wiring the switch, power it down and disconnect the power cord.

WARNING 	Ensure that the power has been turned off before disconnecting modules or cabling. Only the voltage specified on the type plate can be used with the device. Ensure that you are only using components that are specifically intended for the switch device when powering it.

The JetNet series is available with AC power input (JetNet 6228G-4F-AC), DC power input (JetNet JetNet 6228G-4F-2DC), or dual AC/DC inputs (JetNet 6228G-4F-AC-2DC), as well as redundant or aggregated power inputs, depending on the input voltage. If there are more than two power inputs connected with different voltages, JetNet 6228G will be powered from the highest voltage connected (redundant power). A total power output will be aggregated if the voltages of the power inputs are the same.

2.5.8.2.Considerations

Before wiring the device, consider the following guidelines:

- For better management and servicing, label all wiring and cabling to the various devices.
- Earthing conductors must have at least a 3.31 mm2 cross section.
- Terminal Blocks (DC1, DC2) are suitable for AWGs from 12 to 22.
- Route power and device wiring separately according to best practices.
- Calculate the maximum current that can flow through each power and common wire. Ensure that the power draw is within the limits set by your local electrical code.
- Electrically similar wiring should not be bundled together.
- Ensure that inputs and outputs are wired separately.

IMPORTANT	It is possible for signal interference to occur when power and communication wiring are routed through the same conduit. Ensure that power and communications wires are routed through separate conduits in order to avoid interference and degradation of signal quality.

2.5.8.3.Grounding the Device

Follow the grounding procedure instructions and observe these warnings to ensure your equipment is adequately connected to earth ground:

WARNING 	Make sure the device is properly grounded before connecting it. An improper grounding setup may pose a safety risk and could be hazardous.

WARNING 	The ground connection must always be made first and disconnected last when installing or replacing the unit.

WARNING 	Equipment or cables should not be serviced during periods of lightning activity.

CAUTION 	Use a UL-listed ground-lug screw and a UL-listed lug that is suitable for wire with number-6 AWG, which will secure the equipment to earth ground.

Follow these steps to install a single-ground lug on the switch.

1. Make sure you locate the ground adaptor and lug that come with the switch.
2. If the ground wire is insulated, strip it to 0.5 inch (12.7 mm) ± 0.02 inch (0.5 mm).
3. Remove the ground screw from the rear panel of the switch.
4. Install the lug and the wire assembly over the grounding hole and secure with the ground-lug screw (60 in-lb).

5 Connecting the other end of the grounding wire to a grounding point on the rack.

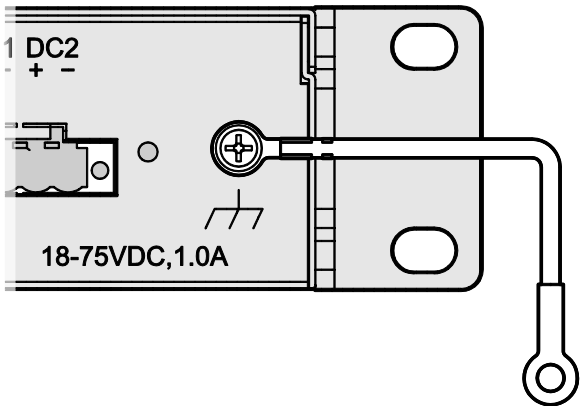


Figure 3 Installing a Ground Lug and Wire

2.5.8.4.Connecting AC Power Input

For models supporting AC power input connectivity, see the following guidelines to connect the switch to the AC power supply.

Connect the supplied power cord to the AC power input slot. The AC power input range is as follows: 100-240VAC.

Figure 3 Connecting an AC Power Input

2.5.8.5.Connecting DC Power Inputs

Power cables for DC power systems include -48V power cables and RTN ground cables. According to the actual situation at your site, ensure that the DC power cables are of a suitable length.

WARNING 	Do not install DC power cables while the power is on.

	Ensure that the external power supply and the switch are all off before connecting the DC power cables.

DC power input ranges from 46 to 57 VDC. For IEEE802.3at mode, the PoE power output is 50 to 57 VDC, 0.6A. The suggested DC power input range is 53 VDC (52 to 57 VDC). In IEEE802.3af mode the power output is 44 to 57 VDC, 0.35A, requiring a DC power input of 48 VDC (46 to 7 VDC).

In the case of a DC input of 53 VDC, the unit will aggregate the DC power with the AC input, if one is provided.

The following steps describe how to wire DC power inputs on supporting JetNet models that are redundant or aggregated.

1. Wear an ESD wrist strap and ESD gloves. ESD wrist straps must be worn in close contact with your wrist. Make sure the other end of the strap is connected to a common ground. Connect the other end of the cord to a common ground.
2. Place temporary labels to both ends of each DC power cable.
3. Use a Phillips screwdriver to loosen the screws on the terminal block.
4. Identify the positive (red) and negative (black) wire lugs and insert them to the respective RTN (+) and NEG (-) terminals.

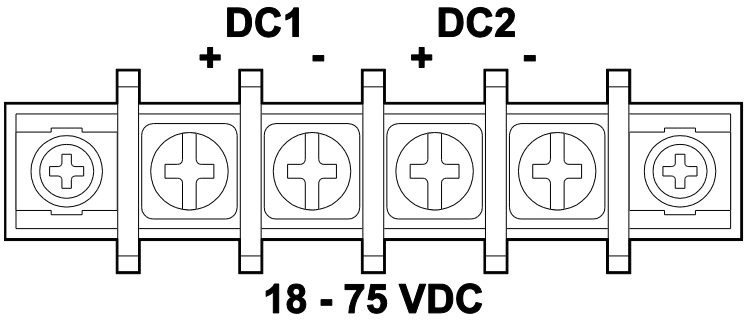


Figure 3 Wiring the DC Power Inputs

5 After connecting the DC wire lugs, tighten the screws on the terminal block.

DC1 and DC2 support polarity reverse protection functions.

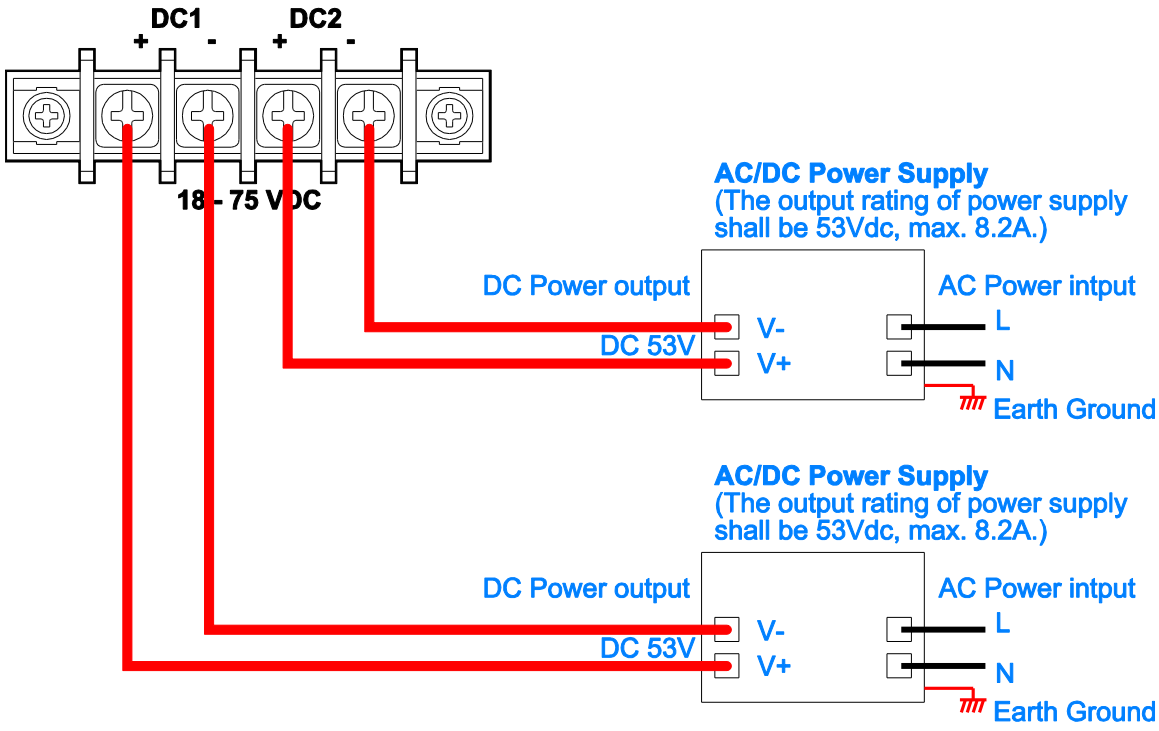


Figure 3 Wiring the DC Power Inputs

6 Remove the temporary labels on the cables and replace them with formal labels.

2.5.8.6.Power Supply Specifications

Table 1 Power Supply Specifications - JetNet 6228G

Power Supply Type	Input Range		Max. Input Current	Fuse Rating	Max. Power Consumption
	Min	Max			All Ethernet Ports
18 VDC **75 VDC**	18 VDC	75 VDC	1A	10A (T)	DC: 19W AC: 35W
HI (110/230 VAC, 47~63 Hz)	100 VAC	240 VAC	0.3A	15A (T)	

2.5.9. Connecting Digital Output Wires

The JetNet 6228G switches includes a relay output. The 2-pin terminal block connector is designed to detect user-configured events. The two wires attached to the fault contacts form an open circuit when a user-configured event is triggered. Fault circuits remain closed if a user-configured event does not occur.

Connect the Digital Output (DO):

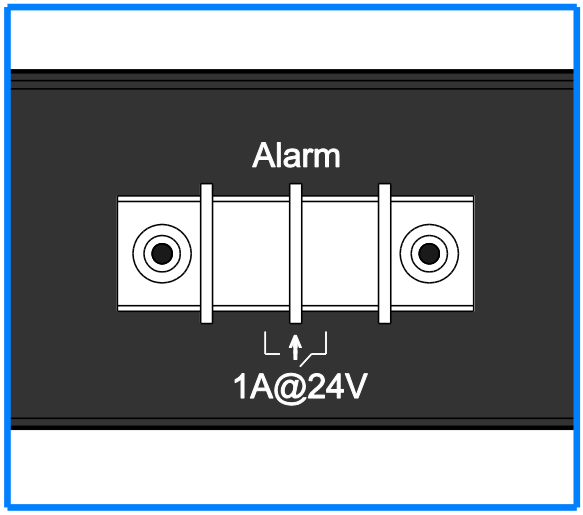


Figure 3 Wiring the DC Power Inputs

Chapter 3. Configuring the JetNet 6228G Series Switches

This chapter describes how to log in to a JetNet 6228G switch for the first time. There following information demonstrates how to access the switch's configuration settings through the web-based interface. The switch can be configured through a web interface or console management.

3.1. Before You Begin

Using a standard network cable, you can connect the JetNet 6228G switch directly to a computer or a network. You will be required to configure your computer's network settings after installing the switch on your intranet. JetNet 6228G switches are assigned the following default configurations:

PARAMETER	VALUE
USERNAME	admin
PASSWORD	admin
LAN IP	192.168.10.1

3.2. Accessing the Web Interface

The Web Interface is accessible by using Google Chrome, Edge, or Firefox.

To access the Web Interface:

1. Connect the switch to the management PC or the network and an available network port on the switch.
2. Connect the switch to power and power it on.
3. Configure the network settings on your computer within the range of the default static IP address of the switch: 192.168.10.2 to 192.168.10.253.
4. If DHCP is enabled on the DHCP server, ensure it can be reached by the switch and the management computer.
5. Open a web browser and enter the IP address (default: 192.168.10.1) in the address bar. The interface displays.
6. In the User Name and Password fields enter the default values:

   Default User Name: **admin**

   Default Password: **admin**

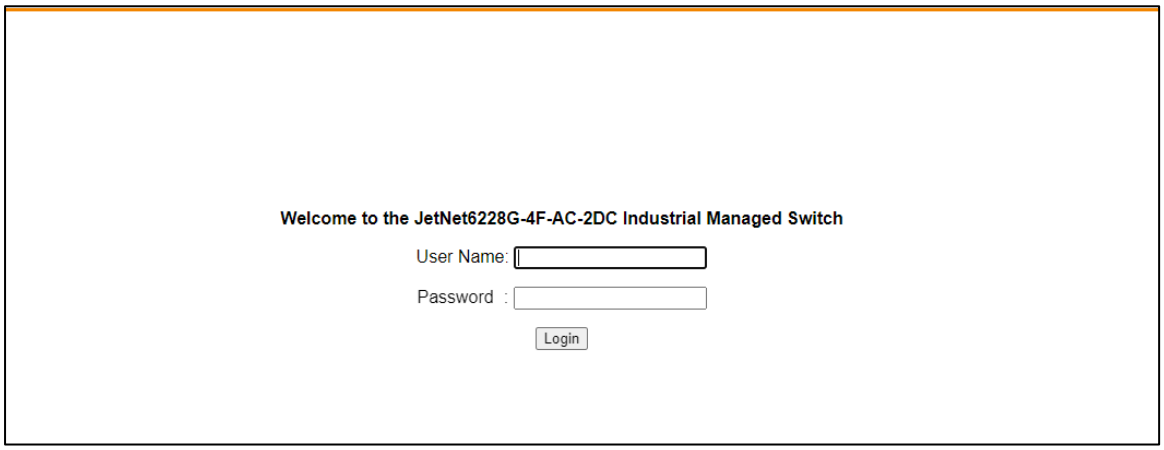


Figure 1 Login Screen

7 Click **Login** to enter the user interface. The Overview screen displays.

If this is the first time to log in with the default username and password, it is recommended to change the default settings.

3.3. Changing Passwords

To change the password:

1 Log in to the interface, see Accessing the Web Interface.

2 Navigate to **System Management** > **User Management**. The User Management screen displays.

3 Under User Account, select the admin profile and click **Edit**.

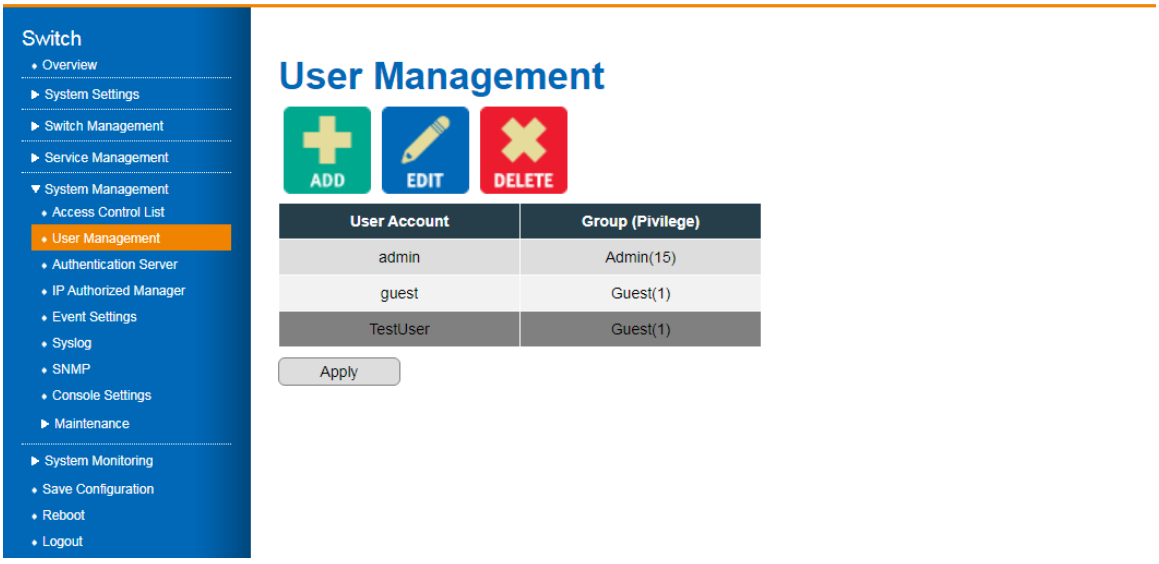


Figure 2 System Management > User Management

4 The detailed user profile menu displays. In the Password field, enter the new password.

5 In the Confirm password field, enter the new password to confirm it and click **Confirm**.

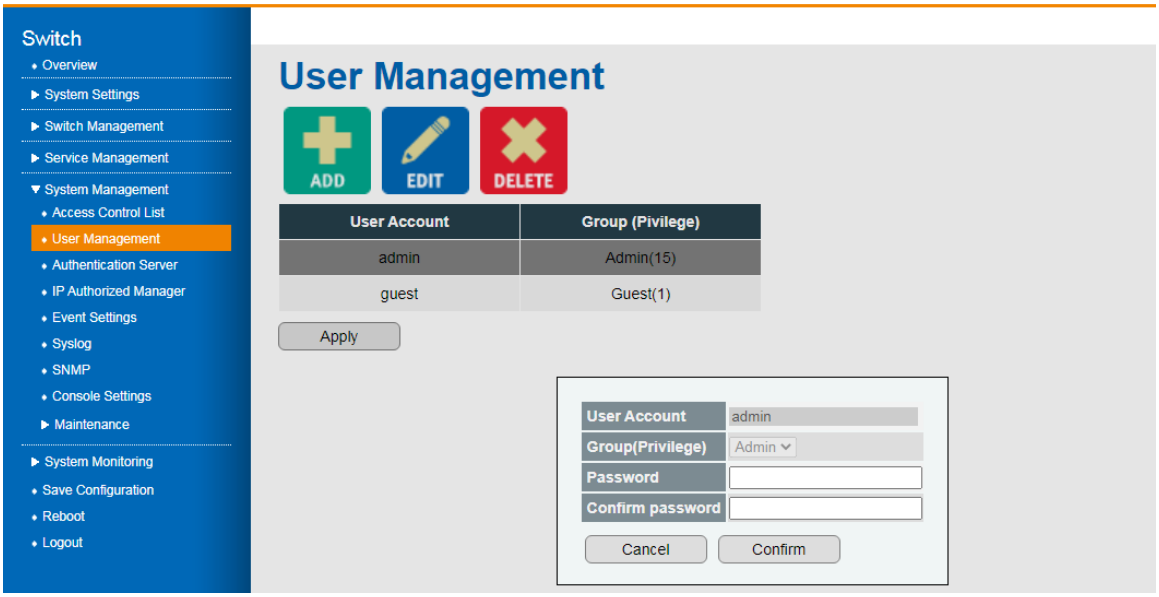


Figure 3 Confirming a New Password

6 Under the main menu tree, navigate to Save Configuration. The Save Configuration screen displays.

7 Click **Apply** to save the new password setting.