

Korenix JetNet 3212G-2C2F

Industrial 12-port Ethernet Switch

User's Manual

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www.korenix.com

Declaration of CE

This product has passed the CE certification for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

Federal Communications Commission (FCC) Statement

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 the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his expense.

The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment.

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1. Introduction

This document describes the method of how to use the Korenix JetNet 3212G-2C2F Industrial 12-port Ethernet switch, includes installation the specifications that it has. Following this user manual, you can get fully imagination about JetNet 3212G-2C2F switch and all information to help you construct the network infrastructure. The following are brief introduction of JetNet 3212G-2C2F switch.

Industrial Gigabit Ethernet Switch

The JetNet 3212G-2C2F is a 12 port industrial Gigabit Ethernet switch designed with enhanced design specification, including wider operating temperature and power input range to best fit in heavy industrial field applications. It also equipped a rugged metal case with thirty grade ingress protection to against damaged solid objects or dust; With the excellent characteristics of heat dissipation, JetNet 3212G-2C2F has better survive ability than ordinary Gigabit Ethernet switch which is enclosure by steel metal with various of heat dissipation holes.

Flexible Optical adopt ability

As the trend of fiber interface, JetNet 3212G-2C2F combines four hot-swappable sockets for Small Form-factor Pluggable (SFP) fiber transceiver. To adopt different type of fiber optical cable or enlarge fiber network campus, the JetNet 3212G-2C2F just need replace new fiber transceiver to meet the specification of optical fiber cable and achieve best inventory performance.

Fault Alarm

The JetNet 3212G-2C2F provides an alarm relay to trigger out a real alarm signal for power event. The alarm mechanism can be trigger an external alarm equipment to inform maintenance I.T. engineers. It makes a result of maintenance time saving.

1-1. Features

JetNet 3212G-2C2F

- 8 Gigabit Base TX ports and 2 Gigabit RJ-45/ SFP combo ports and 2 Gigabit SFP ports
- Flexible Gigabit Fiber Link Distance
- IEEE 802.1p Class of Service (CoS) for packet forwarding precedence
- 10K bytes Jumbo Frame for large file transmission
- Broadcast storm packet filtering
- Dual DC Power input 10~60V
- -40~75°C Hazardous Operating Temperature

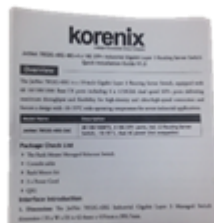
1-2. Package Checklist

JetNet 3212G-2C2F package includes the following items:

- JetNet 3212G-2C2F x1
- One DIN-Rail clip (already screwed on the back of the product)
- One Quick Installation Guide



JetNet 3212G-2C2F



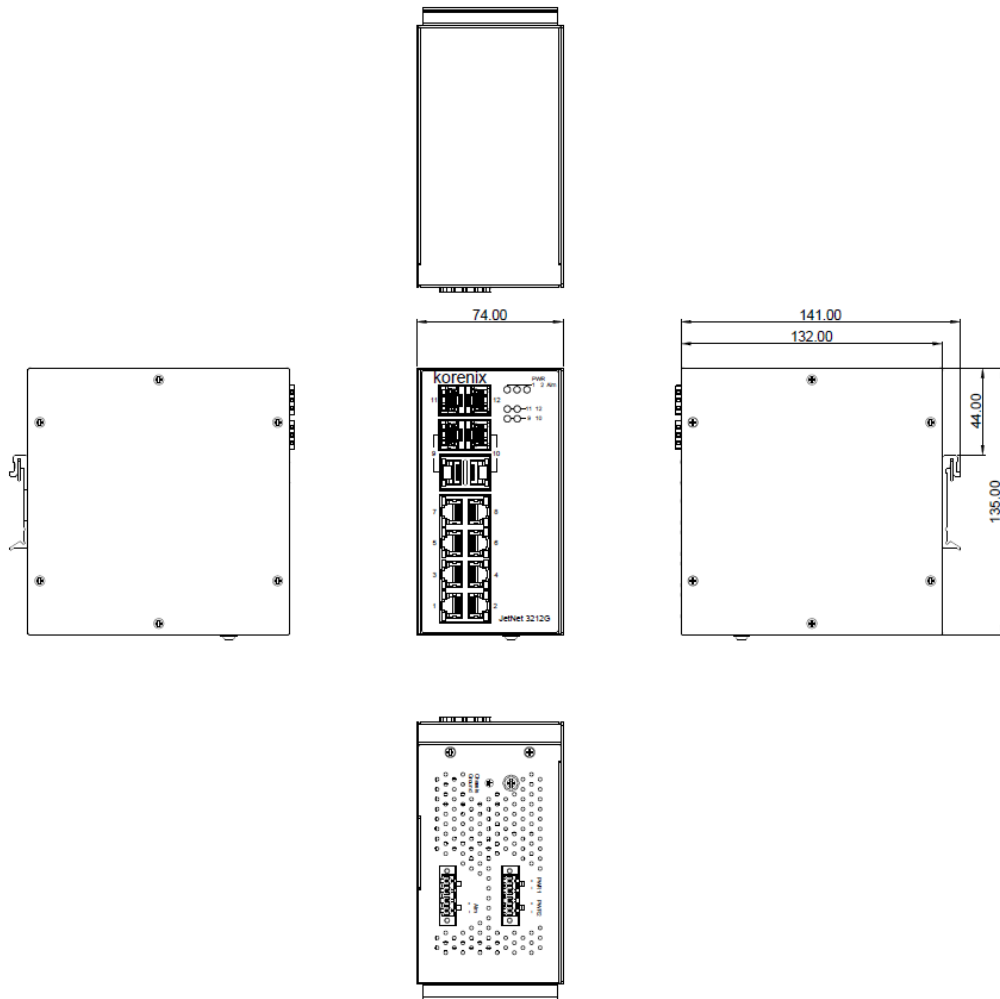
Quick Installation Guide

Contact your sales representative if any item is missing or damaged.

2. Hardware Description

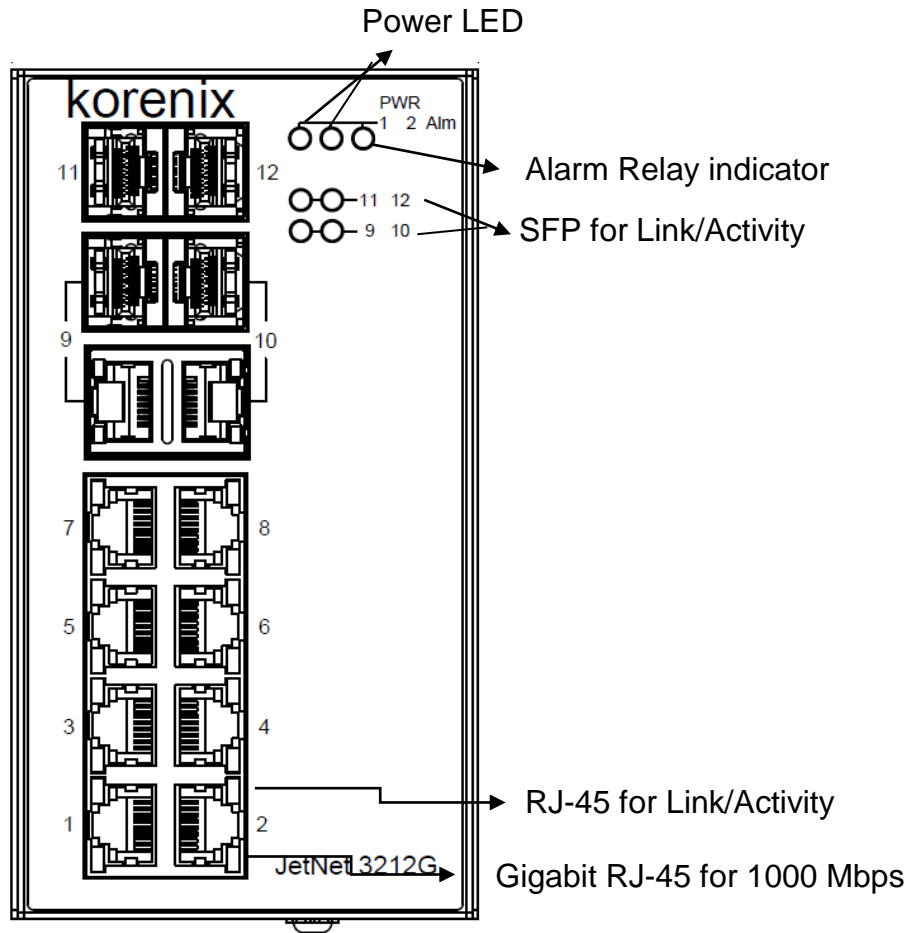
2-1. Dimensions

The dimension of JetNet 3212G-2C2F is **135 mm(H) x 74 mm (W) x132 mm (D) (without DIN rail clip)**



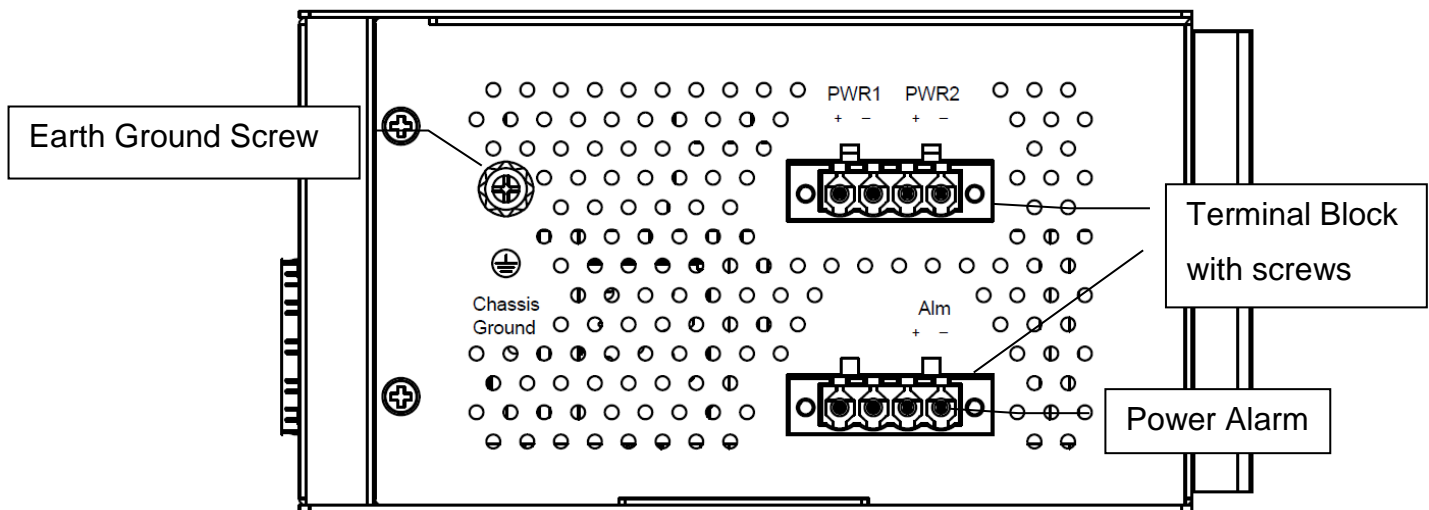
2-2. Front Panel

The Front Panel of the JetCon 3212G-2C2F is shown in below



2-3. Bottom View

The bottom side of the JetNet 3212G-2C2F includes two 4-pin removable terminal block connectors

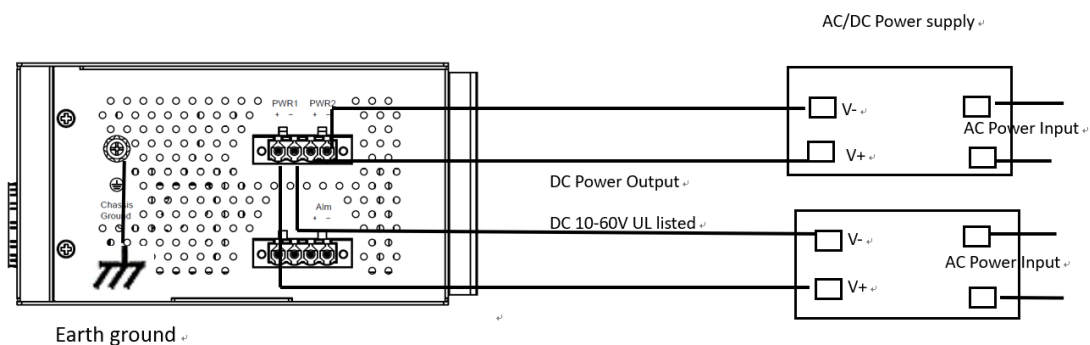


The power range of JetNet 3212G-2C2F is from DC 10~60V with redundancy and polarity reverse function.

To prevent interference and get better performance, it is strongly suggest make a well earth grounding by the “Earth Ground Screw”.

2-4. Wiring the DC Power Inputs

Follow the steps below to wire JetNet 3212G-2C2F redundant DC power inputs.

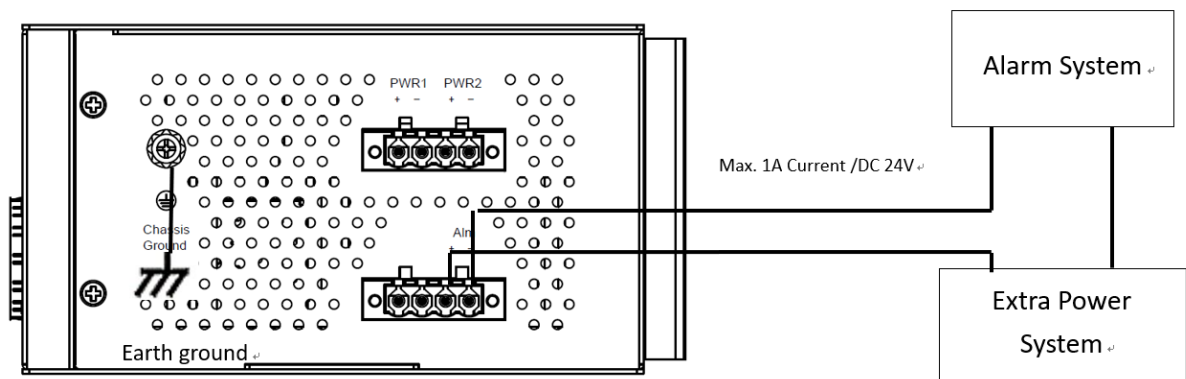


1. Insert the positive and negative wires into the V+ and V- contacts respectively of the terminal block connector
2. Tighten the wire-clamp screws to prevent the DC wires from being loosened.
3. The Power 1 and Power 2 support power redundancy and polarity reverse protection functions.

2-5. Connect the Dry Relay Output

JetNet 3212G-2C2F provides one dry relay output for fault power event.

The relay conductor ability is 24W when it connects with a DC 24V power source and maximum current is 1A. In the following diagram shows how to make an alarm circuit.



2-6. LED Indicators

Following table gives descriptions of the function for each LED indicator.

LED	Status	Description
PWR1,2	Green On	DC-IN Power
	Off	No power in DC-IN
Alm	Red on	Power1 or Power 2 Disconnect.
	Off	Power Connection
SFP (9,10 SFP/RJ-45 combo) (11,12 SFP)	Green on	Link
	Blinking	Activity with speed 1000Mbps
RJ-45	Green On	Link
	Bilking	Activity
	Amber On	Link with Speed 1000Mbps

2-7. Ports

The JetNet 3212G-2C2F supports IEEE 802.3 10Base-T, IEEE 802.3u 100Base-T, IEEE 802.3ab 1000Base-T also support IEEE 802.3z for Gigabit Fiber. This section will introduce how to wiring, install the Ethernet Cable for RJ-45 connector and Gigabit SFP transceiver.

Gigabit TX (RJ-45 connector)

All of RJ-45 ports will auto detect 10Base-T and 100Base-TX or 1000Base-T connections. Auto MDI/MDIX allows users to connect another switch or workstation without changing straight through or crossover cabling. See Figure A, B, C and D for the schematic diagram of straight through and crossover cabling.

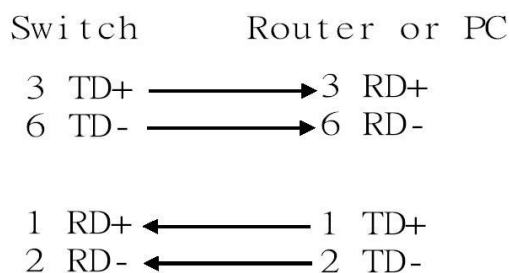


Fig A. Straight through Cabling Schematic for 10/100Mbps

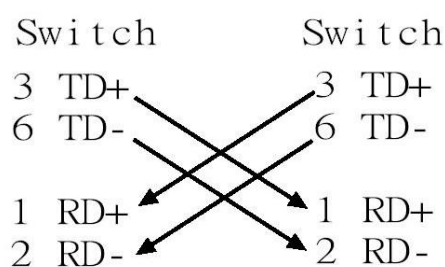


Fig B. Cross Over Cabling Schematic for 10/100Mbps

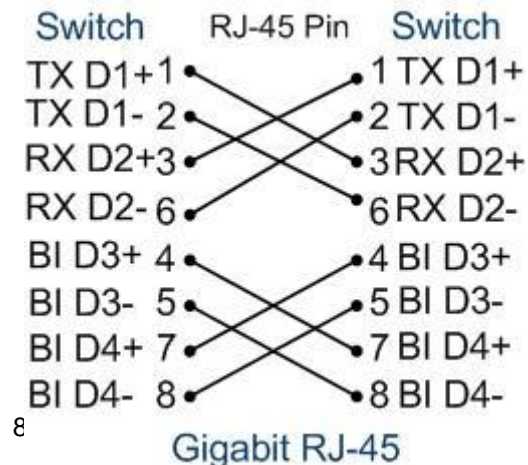
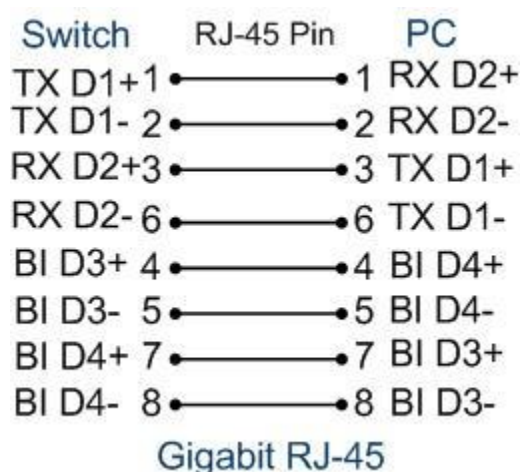


Fig. C Straight through cable schematic for 1000Mbps

Fig. D Cross over cable schematic for 1000Mbps

The RJ-45 ports of JetNet 3212G-2C2F supports auto-MDI/MDI-X function without any cable change when you use an Ethernet cable to connect other devices, such as computers, switches or hubs.

Gigabit SFP port

The SFP port supports hot swappable function and user can change SFP fiber transceiver without system power off. This feature is useful for field site install if the fiber signal cannot attach the other end device, just change the different SFP transceiver type which with large power launch power budget.

Korenix provides various type of SFP transceivers for your application. Please refer the order information.

3. Mounting Installation

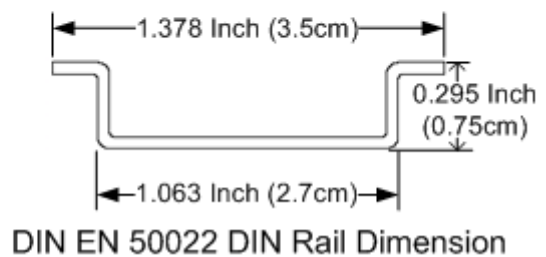
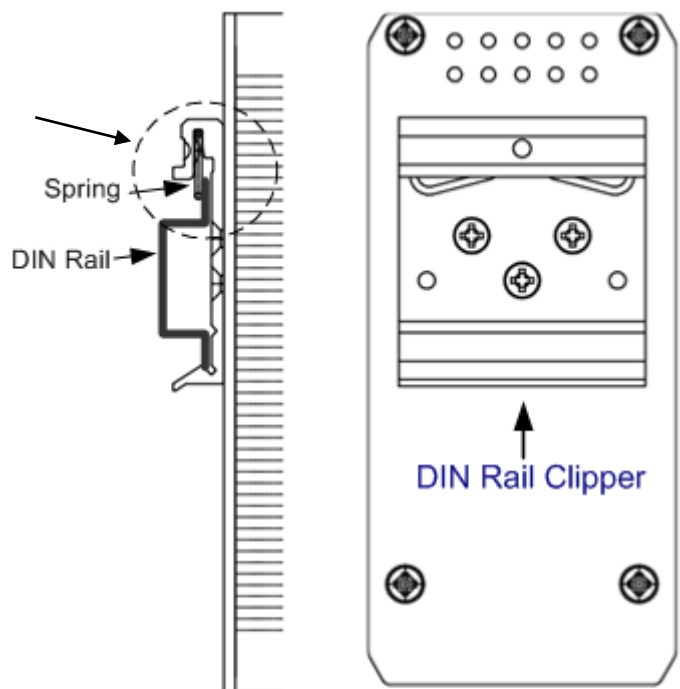
3-1. DIN-Rail Mounting

The DIN-Rail clip is already attached on the rear side of JetNet 3212G-2C2F. JetNet 3212G-2C2F supports EN 50022 standard DIN Rail, in the following diagram includes the dimension of EN 50022 DIN Rail for your reference

The DIN rail should behind the spring when install the JetNet 3212G-2C2F onto the standard DIN Rail.

Follow the steps below to mount the JetNet 3212G-2C2F to the DIN-Rail track

1. Insert the upper end of the DIN-Rail clip into the back of the DIN-Rail track from its upper side
2. Lightly push the bottom of the DIN-Rail clip into the track.
3. Check if the DIN-Rail clip is tightly attached to the track.



1. To remove the JetNet 3212G-2C2F from the track, reverse the steps above.

4. System Installation

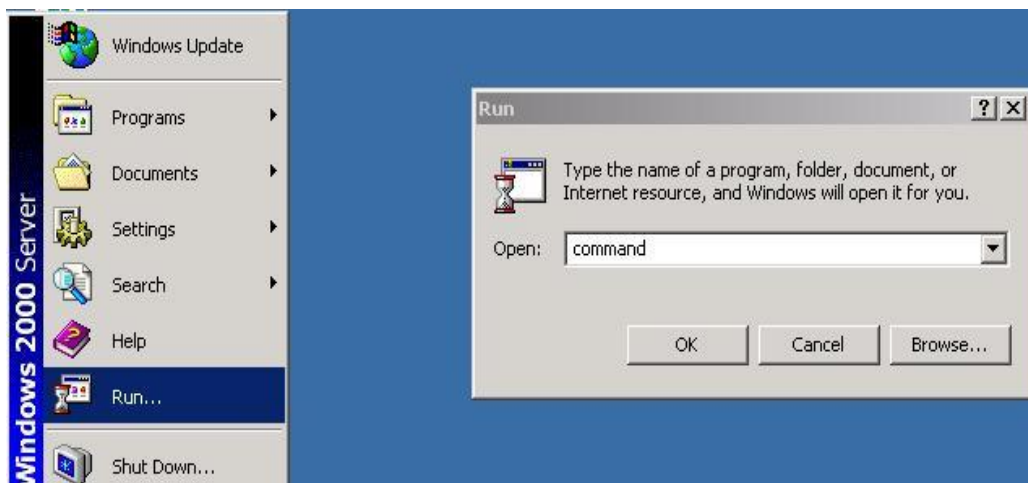
4-1. Installation and Testing

1. Take out your JetNet 3212G-2C2F Industrial Gigabit Ethernet switch from the package box.
2. Check if the DIN-Rail clips attached to the JetNet 3212G-2C2F product . If the DIN-Rail clip is not attached to the product , refer to **DIN-Rail Mounting** section for DIN-Rail installation.
3. To place the JetNet 3212G-2C2F product on the DIN-Rail track or wall, refer to the **Mounting Installation** section.
4. Pull the terminal blocks off the JetNet 3212G-2C2F product and wire the power lines. Refer to 2-4 the **Wiring the DC Power Inputs** section for how to wire the power inputs.
5. PWR1 and PWR2 dual power inputs can be connected to power sources simultaneously. When the primary power source fails (the default setting is PWR1), the system will automatically switch to the secondary power source (PWR2), preventing any power interruption.
Both of Power 1 and Power 2 support positive electricity power system.
6. Check the LEDs of PWR1 and PWR2 to make sure that JetNet 3212G-2C2F series product is operating normally.
7. Use Category 5e or Category 6 straight through Ethernet cables with RJ-45 connectors to connect network devices.
8. Connect one side of an Ethernet cable with a RJ-45 connector to the JetNet 3212G-2C2F product's Ethernet port (RJ-45 port), and the other side of the Ethernet cable to the network device's Gigabit Ethernet port.
9. If you want to connect with Gigabit Fiber, please install appropriate SFP fiber transceiver and fiber cable. To ensure the connection is working, please notice

the type of fiber transceiver of JetNet 3212G-2C2F and the other end of device.

10. Check the LED indicator of port status (blinking green) on the JetNet 3212G-2C2F product to see if the network connection is successfully established.
11. Power on the PC host, activate the Command Line mode, and ping the connected Ethernet device to see if it responds.

11.1 To enable the “Command Line mode”, click **Run** in the Start menu, type **Command**, and click **OK** to continue.



11.2 Type ping 192.168.1.1 command to check the connection. Here we use IP address 192.168.1.1 as an example. Before the testing, be sure your PC host and target device are in the same subnet.

```
C:\WINNT\System32\command.com
C:\>ping 192.168.1.1
Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
```


5. Troubles shooting

- Make sure you are using the correct DC power supplier (DC10~60V for JetNet 3212G-2C2F).
- Select Ethernet cables with specifications suitable for your applications to set up your systems. Ethernet cables are categorized into unshielded twisted-pair (UTP) and shielded twisted-pair (STP) cables. Category 3, 4, 5 Ethernet cables are suitable for systems with 10 Mbps transmission speed. For systems with 100/1000 Mbps transmission speed, Category 5 Ethernet cables are the only suitable specifications for this environment. Also make sure that

the distance between each node cannot be longer than 100 meters (328 feet).

- If the power LEDs goes off as the power cord plugged in, a power failure might occur. Check the power output connection to see if there is any error at the power source. If you still cannot solve the problem, contact your local dealer for assistance

6. Technical Specifications

Technology	
Standard	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3ab 1000Base-TX Gigabit Ethernet IEEE 802.3z Gigabit Ethernet Fiber IEEE 802.3Q Quality-of-Service IEEE 802.3p Class of Service IEEE 802.3x Flow control and back-pressure

Network Performance	
Switch Technology	Store and Forward technology with 24Gbps switch
Transfer packet size	64Bytes ~1518Bytes
MAC Address	8K MAC
Packet Buffer	4.1Mega bits
Broadcast storm control:	Default enabled Traffic threshold: 25M bps@1000Mbps; 10M bps@100Mbps; 1M bps@10 Mbps
Jumbo frame	Up to 10K Bytes
Transfer performance	14,880 pps @10Mbps 148,800 pps @100Mbps 1,488,100 pps @1000Mbps
Quality of Service	Compliance with IEEE802.1p class of service with Tag Based Priority rule Per switch port provides 4 priority queues with 8 (Higher): 4(High): 2(Low): 1(Lower) scheduling. The Tag Priority ID as following: Higher (6,7), High (4,5), Low (0,3), Lowest (1,2)
Class of Service	Default Enabled Supports IPv4/IPv6 packet priority, DSCP and ToS. DSCP/ToS tag is prior to CoS tag if both exist in a frame. Queue Mapping Table:

DSCP Value	Forwarding Queue	ToS Value
0-7	Low	0
8-15	Lowest	1
16-23	Lowest	2
24-31	Low	3
32-39	High	4
40-47	High	5
48-55	Highest	6
56-63	Highest	7

Interface

Enclosure Port	10/100/1000 Mbps Ethernet port: 10 x RJ-45 with auto MDI/MDI-X function 1000Mbps Fiber port : 4 x SFP Socket for SFP fiber transceiver Relay Output port: 4-Pin removable terminal block connector Power input port: 4-Pin removable terminal block connector
Ethernet Cable	100 Base-TX: 2-pair Cat.5E / Cat.6 FTP/STP cable, EIA/TIA 568B 100 Ohm, 100Meters 1000 Base-T: 4-pair Cat.5E/Cat.6 FTP/STP cable, EIA/TIA 568B 100 Ohm, 100Meters
Dry Relay	Dry Relay output: 0.5A / DC 24V
LED Indicators	1000MbpsRJ-45 port: Link (Green on)/Activity (Green Blinking),Speed 1000 (Amber on) 1000Mps SFP: Link/Activity (Green on, Green Blinking) Power: Power on (Green on) Alm: Alarm (Red on)

Power Requirement

System Power	DC 10- 60 V
Power consumption	14W

Mechanical

Installation	DIN-Rail mounting
Case	Metal
Ingress Protection	IP31
Dimension (mm)	74 (W) x 132(D) x 135 (H) – w/o DIN Rail Clip
Installation	DIN-rail mounting
Weight	1.5Kgs

Power Requirement

System power	2x DC power input with polarity reverse protection
Input Range	DC 10-60V

Environmental

Operating Temperature	-40 ~75°C
Operating Humidity	0% ~ 95%, non-condensing
Storage Temperature	-40 ~ 85°C, 0% ~90% Humidity

Regulatory Approvals

Railway Standard	EN 50121-4, EN50121-3-2
EMC	EMI: EN50121-3-2, FCC Class A, IEC/EN61000-6-4 EMS: EN50121-3-2/EN50121-1, IEC/EN61000-6-2

	IEC/EN61000-4-2, IEC/EN61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5, IEC/EN61000-4-6, IEC/EN61000-4-8, IEC/EN61000-4-9
Variation/Shock	IEC 61373
Free Fall	IEC 60068-2-32 with package Note-1
Warranty	5 Years

Revision History

Edition	Date	Modifications
V1.0	1-Dec,2019	New edition