

# JetNet 5012G

## Industrial 8+4G Gigabit Managed Ethernet Switch



- 8 10/100-TX, 2 Gigabit SFP and 2 Gigabit RJ-45/SFP combo ports (10/100/1000 Base-TX, 1000Base-X)
- Non-Blocking Switching Performance, high backplane single chip solution
- Korenix Multiple Super Ring pattern aggregates up to 2 Gigabit and 4 100M Rings
- IEEE 1588 Precision Time Protocol for precise time synchronization
- Jumbo Frame up to 9,216 bytes
- RSTP/STP, 256 802.1Q VLAN, QoS and up to 6 trunk groups
- Supports LLDP and JetViewPro i<sup>2</sup>NMS software for auto topology visualization and efficient group management
- SNMP V1/V2c/V3, RMON for remote management
- IGMP Snooping, GMRP, Rate Control for multicast message management
- Advanced Security supports IP/Port Security, 802.1x and Access Control List
- Dual 12-48VDC power inputs

## Overview

JetNet 5012G, the 8+4G Industrial Managed Ethernet Switch, is specifically designed for industrial environments requiring dual gigabit ring redundancy or one ring plus more gigabit interfaces.

Client workstations, low bandwidth requiring equipments connect to the Fast Ethernet ports, uplink ports, SCADA stations, public servers of the control rooms, share used equipments to connect to the gigabit ports. The industrial managed switch with its 8+4G interface can work alone for different applications.

JetNet 5012G is equipped with 8 10/100TX Fast Ethernet ports, 2 Gigabit SFP and 2 Gigabit RJ-45/SFP combo ports. The SFP ports accept all types of Gigabit SFP transceivers, including Gigabit SX, LX, LHX, ZX and XD for several connections and distances. The copper interface of the 2 Gigabit combo ports supports 10M, 100M or 1000M speed. The switch can work as 8+4G, 7+3G or 10+2G switch. Besides, the speed is auto-negotiated or software configured and all the port types have

non-blocking and wire-speed switching capability. The 8+4G design allows aggregating up to 4 100M rings plus 2 Gigabit rings, which is a unique and Korenix patent protected ring technology.

The JetNet 5012G is designed as rugged surface in aluminum material, with efficient heat dispersion and wide operating temperature. JetNet 5012G supports Jumbo frame, featuring up to 9,216 bytes packet size for large size file transmission, which is the trend for future industrial application requests.

The embedded software supports RSTP and Multiple Super Ring technology for ring redundancy protection. Besides, JetNet 5012G support full layer 2 management features, such as the VLAN, IGMP Snooping, LACP for network control, SNMP, LLDP for network management. The secured access is protected by Port Security, 802.1x and flexible Layer 2/4 Access Control List.

The switch can work with JetView Pro, the Korenix patented Industrial Innovation Network Management system which can draw the network topology,

automatically update ring and port status, remotely manage the switch or monitor its status through LLDP and SNMP protocols.

With JetNet 5012G, you can fulfill the technicians' needs of having the best solution for the industrial Ethernet infrastructure.

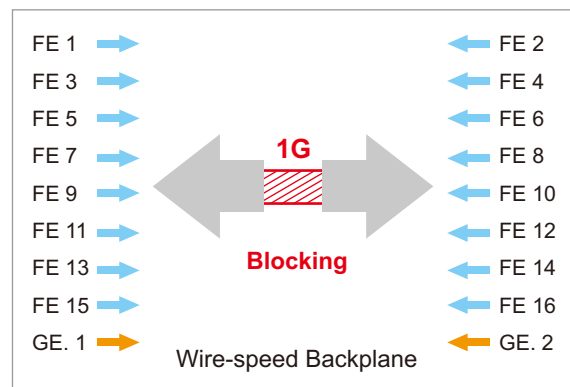
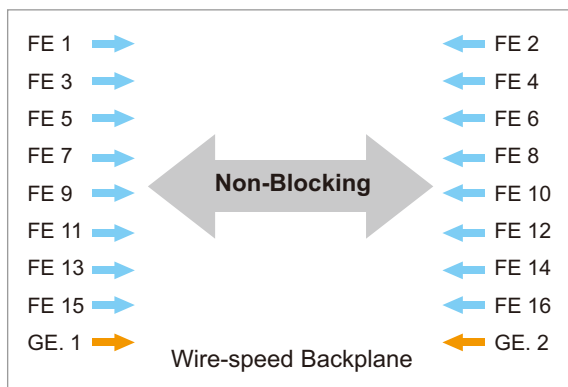
## High Bandwidth and Performance

The JetNet 5012G, equipped with 8 100M Fast Ethernet plus 4 Gigabit Ethernet ports, requests at least 9.6G backplane for wire-speed and bi-directional transmission. To meet the requirements, there are 2 types of system architecture - non-blocking and blocking.

In non-blocking architecture, the switch fabric should provide higher backplane than are the front ports' requests. No matter it's a one to one or fully mesh network, the throughput is always 100% without any loss.

The blocking architecture is usually implemented in non-single chipset solution. Limited backplane may cause traffic jam when there is a heavy loading transmission among the ports.

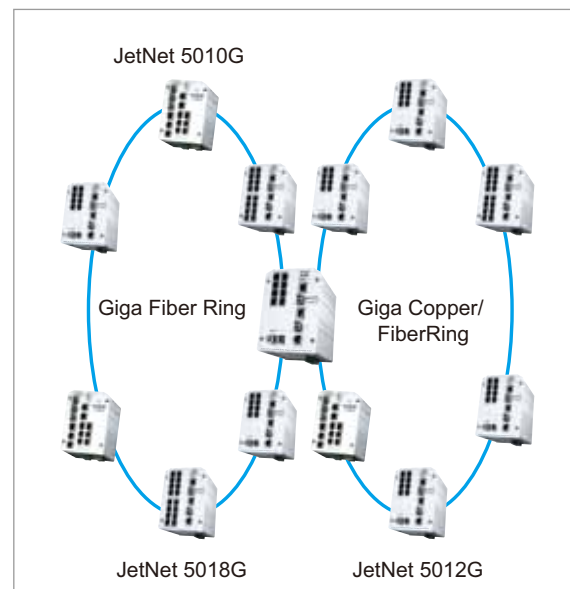
The JetNet 5012G embedded 12.8G backplane is much higher than the system requires. All the traffic can be switching without blocking and loss. Up to 9K Jumbo frame allows transmitting larger files with less segments. The high bandwidth and performance solution guarantees the high capabilities of the product.



### Dual Gigabit Rings aggregation capability

Unlike traditional ring switches, which only allow one ring setting or one ring traffic pass-through, the JetNet 5012G supports MultiRing Technology. This allows aggregating 2 or multiple rings within a single switch, lowering the effort on configuration, minimizing the switch volume, easing the network plan especially for complex environments.

Main benefit of the JetNet 5012G is that it allows you to aggregate dual gigabit rings within a single switch. JetNet 5012G with 2 gigabit fiber plus 2 gigabit combo ports can aggregate 2 gigabit fiber rings or 1 gigabit fiber and 1 100M/Gigabit copper rings plus more 100M cooper rings within a single unit.



Industrial PoE Switch

IP67/68 Ethernet Switch

Rackmount Managed Switch

Gigabit Switch

Redundant Switch

Entry-Level Switch

Networking Computer

Communication Computer

Ethernet I/O Server

Serial Device Server

Media Converter

Multiport Serial Card

SFP Module

Din Rail Power Supply

### Gigabit SFP Port

The JetNet 5012G is equipped with 4 Gigabit RJ-45/SFP Combo Ports. The uplink ports' bandwidth is often the bottleneck, when a high port density switch connects to many ports. The Gigabit Combo interface acts as the uplink and downlink path, allowing you to choose copper or different range fiber connection. The JetNet 5012G SFP socket supports 1000Base-X SFP transceiver. You can choose different types of SFP transceivers, including Multi/Single mode transceivers for your switch, depending on the environmental needs, the distance or the installed fiber cable types.



## Multiple Super Ring aggregation capability

The JetNet 5012G supports the new generation ring technology – MSRTM which includes various new technologies for redundancy applications and structures of different networks.

The JetNet 5012G allows to aggregate up to 6 Rapid Super Rings, 4 Fast Ethernet plus dual gigabit Ethernet Rings. The Korenix protected pattern eases your network planning.



Multiple Super Ring

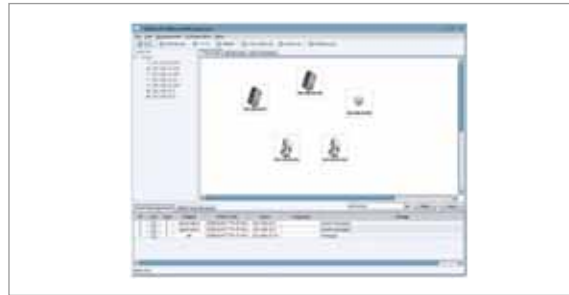
| Rapid Super Ring  | Rapid Dual Homing  | MultiRing   | TrunkRing   |
|---|--|---|---|
| <ul style="list-style-type: none"> <li>■ Ring Master auto-select</li> <li>■ Seamless restoration</li> <li>■ Ring Failure alarms/LED</li> <li>■ Failed ring port together with Ring Master</li> <li>■ Mini second Recovery Time</li> <li>■ Backward compatible with legacy Super Ring</li> </ul> | <ul style="list-style-type: none"> <li>■ Multiple Uplink Paths</li> <li>■ One to One upper, Many to One upper, One to Many upper switches</li> <li>■ Seamless Restoration</li> <li>■ Korenix Patent protected</li> </ul> | <ul style="list-style-type: none"> <li>■ Couple 2 rings with shared unit</li> <li>■ Multiple up to 4 100M Rings plus 4G for coupling 2 Gigabit rings</li> <li>■ Korenix Patent protected</li> </ul> | <ul style="list-style-type: none"> <li>■ Integrate Port Trunk/LACP with MSR, RSR</li> <li>■ Load balancing of ring Ports</li> <li>■ Backup with each other</li> <li>■ Korenix Patent protected</li> </ul> |

## Work with JetView Pro NMS

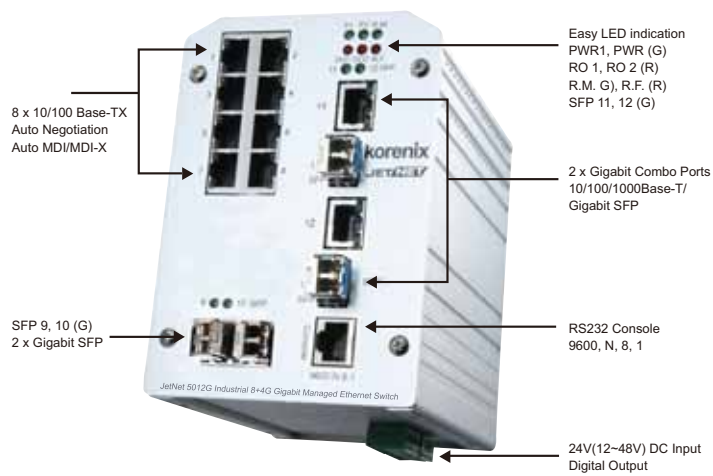
The Link Layer Discover Protocol (LLDP) was formally ratified as IEEE 802.1AB-2005. LLDP is the Layer 2 protocol that allows the network device/station to advertise connectivity & management information, the identity & major capabilities, receives and establishes network management information on the local same network.

In industrial environments, most vendors provide their own discovering protocols, window utility or other tools to manage their switches. The LLDP protocol fixes the interoperability among them. With LLDP supported, users can easily browse the network devices and establish the network management information schema about the stations.

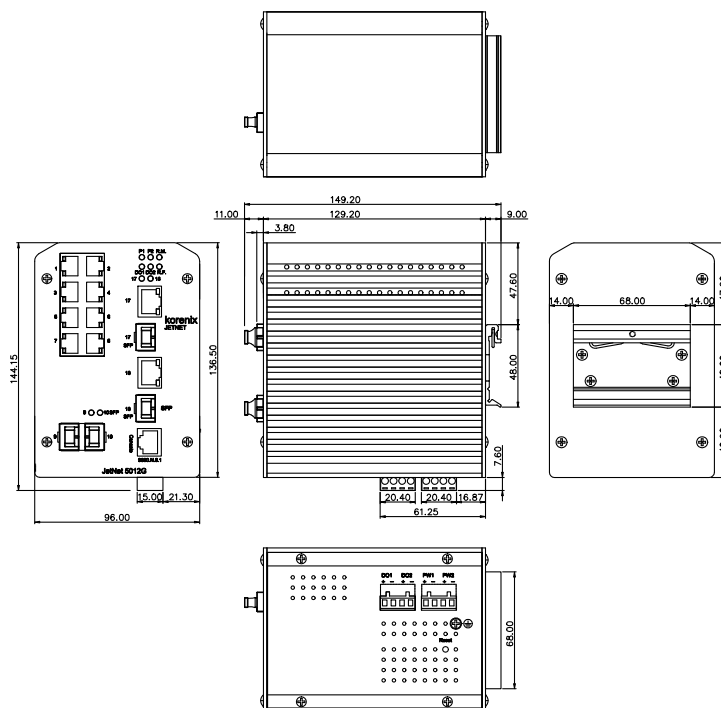
With SNMP, LLDP and JetView protocols supported, JetNet 5012G Series can be easily discovered, their port and ring status can be displayed by JetView Pro, the Korenix designed Network Management System or other NMS, which supports SNMP and LLDP. The software can help administrators efficiently and effectively manage the industrial network.



## JetNet 5012 Appearance



## Dimension



- Industrial PoE Switch
- IP67/68 Ethernet Switch
- Rackmount Managed Switch
- Gigabit Switch
- Redundant Switch
- Entry-Level Switch
- Networking Computer
- Communication Computer
- Ethernet I/O Server
- Serial Device Server
- Media Converter
- Multiport Serial Card
- SFP Module
- Din Rail Power Supply

## Specification

### Technology

Standard:

IEEE 802.3 10Base-T Ethernet  
IEEE 802.3u 100Base-TX Fast Ethernet  
IEEE 802.3ab 1000Base-TX  
IEEE 802.3z Gigabit Ethernet Fiber  
IEEE 802.3x Flow Control and Back-pressure  
IEEE 802.1p class of service  
IEEE 802.1Q VLAN and GVRP  
IEEE 802.1D-2004 Rapid Spanning Tree Protocol (RSTP)  
IEEE802.3ad Link Aggregation Control Protocol (LACP)  
IEEE802.1X Port based Network Access Control  
IEEE802.1AB Link Layer Discovery Protocol

### Performance

#### Switch Technology:

Store and Forward Technology, 12.8Gbps Switch Fabric.

**System Throughput:** 14,880pps for 10M Ethernet, 148,800pps for 100M Fast Ethernet, 1,488,100 for Gigabit Ethernet

**Transfer packet size:** Typical: 64 bytes to 1536 bytes,

**Jumbo Frame Enabled:** Up to 9,216bytes.

**MAC Address:** 8K

**Packet Buffer:** 2Mbits

### Management

**Configuration:** Cisco-Like CLI, Web, SSL, SSH, JetView, Backup/Restore, DHCP Client, Warm reboot, Reset to default, Admin password, Port Speed/Duplex control, status, statistic, MAC address table display, Static MAC, Aging time, Dual Firmware images

**Jumbo Frame Enable/Disable:** up to 9,216KBytes

**LLDP:** Link Layer Discovery Protocol to advertise system/port identity and capability on the local network

**SNMP:** SNMP v1, v2c, v3 and Traps.

**SNMP MIB:** MIB-II, Bridge MIB, VLAN MIB, SNMP MIB, RMON and Private MIB

**SNTP:** Simple Network Time Protocol to synchronize time

**Port Mirroring:** Online traffic monitoring

**Port Trunk:** Static Trunk and 802.3ad LACP, Up to 12 Trunk Group, 2-8 ports per trunk

**Rate Control:** Ingress and Egress rate limiting

**VLAN:** IEEE802.1Q VLAN, GVRP. Up to 255 VLANs

**VLAN QinQ:** Double VLAN tag

**Quality of Service:** Four priority queues per port, IEEE802.1p COS and Layer 3 TOS/DiffServ

**IGMP Snooping:** IGMP Snooping V1/V2 for multicast filtering and IGMP Query

**GMRP:** GVRP Multicast Registration Protocol

**Port Security:** Assign authorized MAC to specific port

**IP Security:** IP security to prevent unauthorized access

**802.1x:** Port\_based Network Access Control

**Access Control List:** Permit/Deny access control lists

**DHCP Server Support 255 Dynamic IP poll**

**DHCP Option 82 Relay the DHCP request to remote server**

**E-mail Warning:** Automatic warning by pre-defined events

**Syslog:** Message logged with server and client mode

### Network Redundancy

**Rapid Spanning Tree Protocol:** 802.1D-2004 RSTP, compatible with Legacy STP

**Multiple Super Ring(MSR™):** Korenix Ring Redundancy Technology, Includes Rapid Super Ring, Rapid Dual Homing, TrunkRing, MultiRing

**Rapid Dual Homing (RDH™):** Multiple uplink paths to one or multiple upper switch

**TrunkRing™:** Integrate port aggregate function in ring path to get higher throughput ring architecture

**MultiRing™:** Couple or Multiple Rapid Super Rings within one switch. Maximum 4 100M rings plus 2 Gigabit Rings

**Legacy Super Ring:** Backward compatible in client mode

### Interface

#### Number of Fixed Gigabit Ports:

10/100Base-TX: 8 x RJ-45, Auto MDI/MDI-X, Auto Negotiation

10/100/1000Base-TX: 2 x RJ-45, combo with SFP

1000Base-X: 4 x SFP with Hot Swappable

#### Cables:

10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable (100m)

100 Base-TX: 2/4-pair UTP/STP Cat. 5 cable (100m)

1000 Base-T: 4-pair UTP/STP Cat. 5 cable (100m)

#### Diagnostic LED:

System: Power 1, Power 2, Ring Master (Green), Relay 1, Relay 2, Ring Failure (Red)

10/100 RJ-45: Link (Green/Left), Activity (Yellow Blinking/Right)

1000Base-T RJ-45: 10/100/1000 Link (Green/Left), Full Duplex (Yellow/Right), Activity (Green Blinking)

Gigabit SFP: Link/Activity (Green/Green Blinking)

**RS232 Console:** RJ-45 type, Pin: (2: TxD, 3: RxD, 5:GND)

**Power:** 2 sets of DC inputs

**Relay Output:** 2 sets of Relay Output

**Reset:** One Reset button for Reset Factory Default

### Power Requirements

**System Power:** Dual 24/48V (12-48V) DC power input

**Power Consumption:** Max. 15 Watts

### Mechanical

**Installation:** Din Rail or Wall Mount

**Case:** Aluminum metal case with IP31 protection

**Dimension:** 137mm(H) x 96mm (W) x 129mm (D)

**Weight:** 1.5 kg with package

### Environmental

**Operating Temperature:** -25 ~70°C

**Operating Humidity:** 5% ~ 95% (non-condensing)

**Storage Temperature:** -40 ~ 85°C

### Regulatory Approvals

**EMI:** FCC Class A, CE/EN55022. Class A

**EMS:** EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11

**Safety:** UL, cUL, EN60950, cB (IEC60950-1) (Pending)

**Shock:** IEC60068-2-29

**Vibration:** IEC60068-2-6

**Free Fall:** IEC60068-2-32

**Warranty:** 5 years

## Ordering Information

### JetNet 5012G Industrial 8+4G Gigabit Managed Ethernet Switch

Includes:

- JetNet 5012G (without SFP transceivers)
- Din Rail Kit
- Document CD
- Quick Installation Guide
- Console Cable

## Optional Accessories

### Gigabit SFP

|                    |   |
|--------------------|---|
| <b>SFPGSX:</b>     | 1000Base-SX multi-mode transceiver 550m , commercial operating Temp, -10~70°C   |
| <b>SFPGSX-w:</b>   | 1000Base-SX multi-mode transceiver 550m , commercial operating Temp, -40~85°C   |
| <b>SFPGSX2:</b>    | 1000Base-SX multi-mode transceiver 2km , commercial operating Temp, -10~70°C    |
| <b>SFPGSX2-w:</b>  | 1000Base-SX multi-mode transceiver 2km , commercial operating Temp, -40~85°C    |
| <b>SFPGSX10:</b>   | 1000Base-LX single-mode transceiver 10Km , commercial operating Temp, -10~70°C  |
| <b>SFPGSX10-w:</b> | 1000Base-LX single-mode transceiver 10Km , commercial operating Temp, -40~85°C  |
| <b>SFPGSX30:</b>   | 1000Base-LHX single-mode transceiver 30Km , commercial operating Temp, -10~70°C |
| <b>SFPGSX30-w:</b> | 1000Base-LHX single-mode transceiver 30Km , commercial operating Temp, -40~85°C |
| <b>SFPGXD50:</b>   | 1000Base-XD single-mode transceiver 50Km , commercial operating Temp, -10~70°C  |
| <b>SFPGXD50-w:</b> | 1000Base-XD single-mode transceiver 50Km , commercial operating Temp, -40~85°C  |
| <b>SFPGZX70:</b>   | 1000Base-ZX single-mode transceiver 70Km , commercial operating Temp, -10~70°C  |
| <b>SFPGZX70-w:</b> | 1000Base-ZX single-mode transceiver 70Km , commercial operating Temp, -40~85°C  |

### SFP Gigabit BIDI/WDM

|                      |   |
|----------------------|---|
| <b>SFPGX10B13:</b>   | 1000Base-LX BIDI single-mode transceiver 10km, -10~70°C |
| <b>SFPGX10B13-w:</b> | 1000Base-LX BIDI single-mode transceiver 10km, -40~85°C |
| <b>SFPGX10B15:</b>   | 1000Base-LX BIDI single-mode transceiver 10km, -10~70°C |
| <b>SFPGX10B15-w:</b> | 1000Base-LX BIDI single-mode transceiver 10km, -40~85°C |
| <b>SFPGX20B13:</b>   | 1000Base-LX BIDI single-mode transceiver 20km, -10~70°C |
| <b>SFPGX20B13-w:</b> | 1000Base-LX BIDI single-mode transceiver 20km, -40~85°C |
| <b>SFPGX20B15:</b>   | 1000Base-LX BIDI single-mode transceiver 20km, -10~70°C |
| <b>SFPGX20B15-w:</b> | 1000Base-LX BIDI single-mode transceiver 20km, -40~85°C |
| <b>SFPGX40B13:</b>   | 1000Base-LX BIDI single-mode transceiver 40km, -10~70°C |
| <b>SFPGX40B13-w:</b> | 1000Base-LX BIDI single-mode transceiver 40km, -40~85°C |
| <b>SFPGX40B15:</b>   | 1000Base-LX BIDI single-mode transceiver 40km, -10~70°C |
| <b>SFPGX40B15-w:</b> | 1000Base-LX BIDI single-mode transceiver 40km, -40~85°C |
| <b>SFPGX60B13:</b>   | 1000Base-LX BIDI single-mode transceiver 60km, -10~70°C |
| <b>SFPGX60B13-w:</b> | 1000Base-LX BIDI single-mode transceiver 60km, -40~85°C |
| <b>SFPGX60B15:</b>   | 1000Base-LX BIDI single-mode transceiver 60km, -10~70°C |

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