JetNet 5710G

Industrial 8 PoE + 2G Managed High Power IEEE802.3at PoE Switch

Industrial 8 PoE+ Giga Switch

CE FC RoHS

8PoE+2G | 30W PoE | 200W | MSR < 5ms

4+1G Rings | LLDP & JetViewPro | EN 50155 | -40~70°C

- 8 10/100 Base TX PoE ports and 2 Gigabit uplink ports
- 8 PoE ports support both 15.4W IEEE 802.3af and the latest 30W high power IEEE802.3at by LLDP PoE classification
- Total power budget is 200W by IEEE 802.3at with maximum 30W per port
- All ports support Korenix patented RSR with 5ms recovery time, and MSR for up to 4 x 100M Rings plus 1 Gigabit Ring
- IEEE 802.1AB LLDP and optional JetView Pro i^{2}NMS software for auto- topology and group management
- Tag-VLAN for multiple VLAN traffic isolation
- LACP port trunk for bandwidth aggregation in video surveillance
- Redundant DC Power Inputs and Alarm Relay Output
- AC 1.5KV Hi-Pot Isolation Protection for ports and power
- EN50155 compliance (applying)
- -40~70°C wide operating temperature (802.3af)

Overview

Korenix JetNet 5710G, the revolutionary Gigabit Managed Industrial Power over Ethernet Switch, is designed exclusively for highly critical PoE applications such as real time IP video surveillance with high resolution quality and the evolving demands of wireless communications such as Wimax and 802.11 a/b/g/n Access Points. By software configuration or by LLDP auto detection, the eight 10/100 TX PoE injector ports can deliver 15.4W by IEEE 802.3af or 30W by the latest High Power PoE IEEE 802.3at standard. The total power budget is up to 200W per unit to fulfill local increasing PoE demands. The two Gigabit Ethernet ports provide high speed uplink to connect with higher level backbone switches with Korenix MSRTM network redundancy technology. Korenix RSRTM can recover the network failure in less than 5 ms. JetNet 5710G is compliant with EN50155/50121-4/50121-3-2 railway standards and has -40~70oC wide operating temperature range to work reliably under vibrating and shock environments in rolling stock applications.

JETPoE

Driving the High Power PoE market - Security, WiMAX

Since the ratification of the PoE standard in 2003, the Power over Ethernet technology becomes a trend; more devices adopt PD technology to obtain power through Ethernet cable eliminating the need of running separate power wirings to a remote device. In this context, the IEEE 802.3af PoE standard with 15.4 w power budget already satisfies the power needs of most applications, such as 802.11 a/b /g /n wireless AP for Hot-Spots, Air-port Terminations or public internet access as well as a number of IP security applications, which require up to 15.4w power. However, it cannot satisfy the power needs of high end demanding applications, such as WiMAX, IP DOM Cameras, requiring greater than the 15.4w power. The JetNet 5710G is equipped with the new PSE solution, compliant with both IEEE 802.3af and IEEE 802.3at high power PoE standards. The 8 PoE ports support the LLDP power negotiation function of IEEE 802.3at PoE plus and can deliver 30 watts power per port and 200W per unit to outdoor PTZ IP cameras with direction control for cross–street

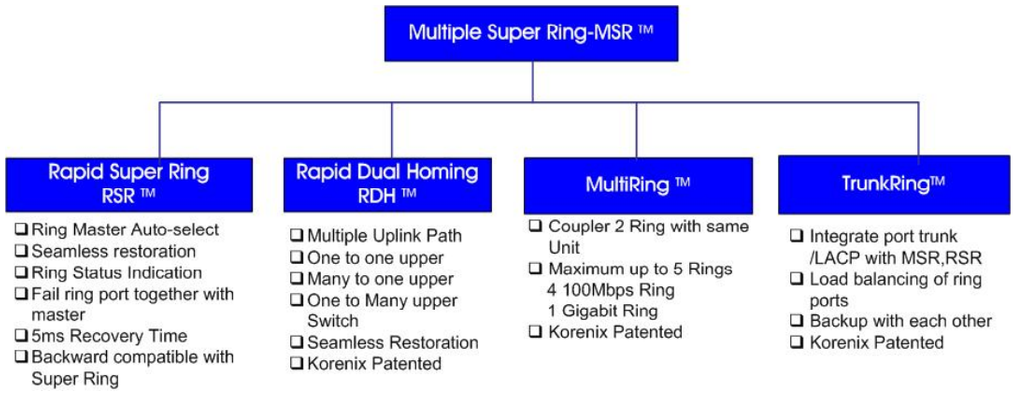
monitoring, or WiMAX systems for internet access in train stations, airports or Hot-spots. Moreover, the 8 PoE ports of JetNet 5710G integrate forced powering mode function to drive the legacy Powered devices, which does not comfort to the IEEE 802.3 PoE standard. The additional dual Gigabit ports provide more resilient and redundancy for users while forming a ring network and delivering increased bandwidth to the central network.

Power budget limitation with priority control

To power the PoE IEEE 802.3af, PSE device needs to deliver 48V or higher voltage. However, in some environments it becomes hard to obtain enough power budget when the PSE is working with heavy loading. The JetNet 5710G provides budget and priority control to ensure that the total power consumption will not exceed the power limit installed by user. It also provides budget control function to limit the output power in case if the PD device is not claimed right consumption numbers. This feature allows user to protect high priority PD devices from shut down caused by overloading of the power supply.

Comprehensive Redundant Solutions – Multiple Super Ring (MSR^{TM})

The JetNet 5710G supports new generation ring technology - MSRTM (Multiple Super Ring), which includes various new technologies for different network redundancy applications and structures. The JetNet 5710G allows aggregating up to 5 Rapid Super Rings, including 4 Fast Ethernet plus 1 Gigabit Ethernet Rings. With the MSRTM technology, a node can be configured to multiple rings with the failover time in as little as 5ms and zero-second of restoration time. In addition, users can extend the ring topology by adding hundreds of JetNet series to meet the large-scale network needs without compromising the network speed. The MSRTM also allows the JetNet series to easily connect with core management switches via standard Rapid Spanning Tree Protocol or through multiple paths or nodes to increase the reliability by RDHTM (Rapid Dual Homing)(RDHTM) technology. By integrating MSRTM and Link Aggregation Control Protocol (LACP) the JetNet series can enhance the link availability and increase the overall link capacity. Two or more Fast Ethernet connections are combined in order to increase the bandwidth and to create a resilient and redundant link.

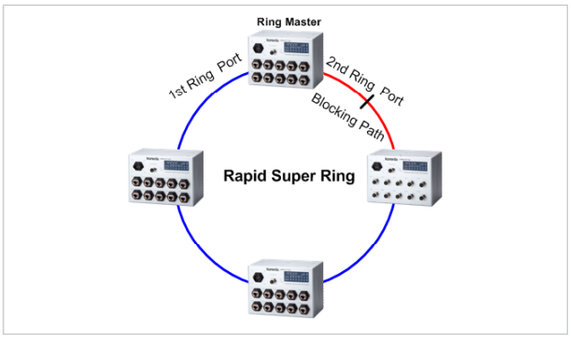


Seamless Ring Port Restoration™

Seamless restoration is a new Korenix patented technology which can restore a failed ring without causing any loop problem, topology change and packet loss. With a 0 second restoration time, this mechanism eliminates any unstable status and guarantees the applications running non-stop.

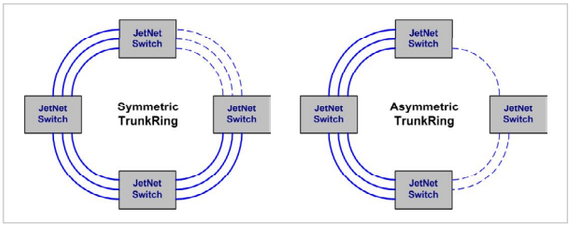
Rapid Super Ring (RSR™) Technology

Rapid Super Ring is the 2nd generation of Korenix Ring Redundancy technology. The recovery time is greatly improved from 30ms to few ms for both copper and fiber ring. The Ring master can be auto-selected by RSR engine. The 1st ring port of the R.M. is the primary path while the 2nd ring port of the R.M. is the block path. Once the primary path fails, the 2nd path will be recovered within few ms. Besides, the restoration time is also shortened to zero in the R.M. auto-selection mode.



TrunkRing™

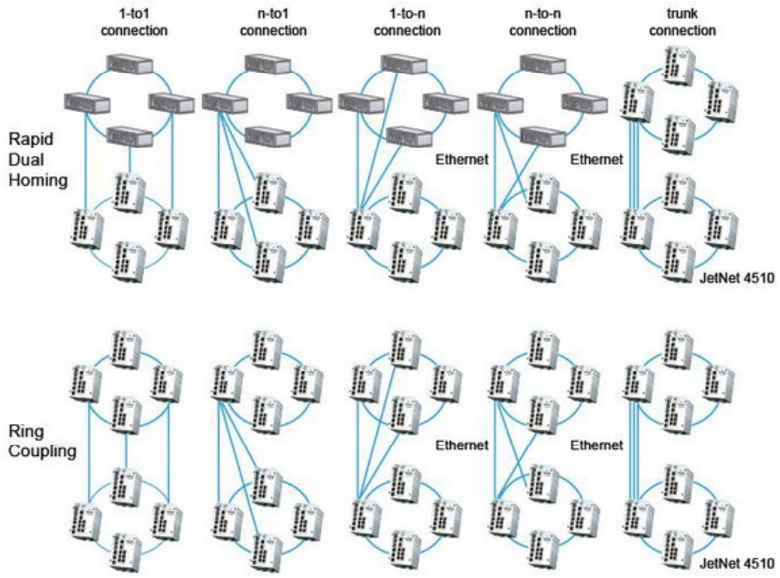
runkRing is a new feature in MSR which merges the two technologies of RSR and link aggregation. It takes advantages of aggregation to enhance the link redundancy, while increasing the link speed. The ring will open only if all the aggregated links are broken. Link aggregation can be achieved by either static trunk or LACP. Not all the link sections in a TrunkRing need to be the same. Ring links can be either symmetric or asymmetric. Some are a single path, and the others are aggregated by links where the number of links in a trunk group can be different. Users can enhance the link



redundancy at different locations in accordance to the need. The link with less speed is more likely to be used as the backup path for restoring the network to full play capacity.

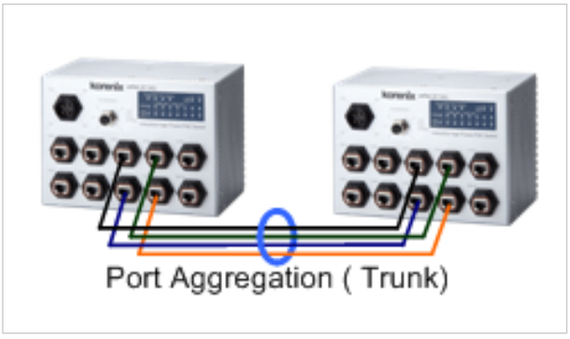
Rapid Dual Homing (RDH^{TM}) Technology

Rapid Dual Homing is also an important feature of Korenix new generation Ring technology. It supports ring coupling with other vendors devices. Moreover, providing easy configuration and multiple redundancies, the failover time is much faster and the restoration time is zero ms. Uplinks can be auto detected and gathered into groups. In each group uplinks are sorted into primary, secondary and standbys based on their link speed. The uplink with the highest speed is more likely to be active path for data transmission. Link aggregation is also integrated into RDHTM. An uplink connection can be a single link or several links aggregated as a trunk, which provides better redundancy and link capacity.



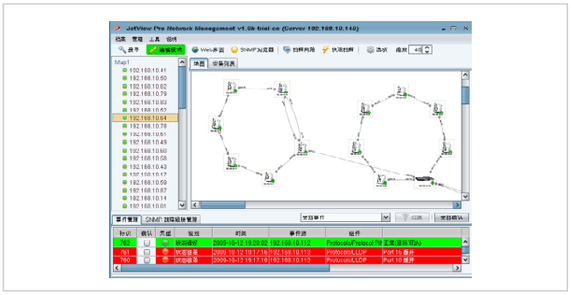
Link Aggregation Control Protocol

Link Aggregation Control Protocol allows users grouping multiple Ethernet ports in parallel to increase the link bandwidth. The aggregated ports can be viewed as one physical port, so that the bandwidth is higher than just one single Ethernet port. The member ports of the same trunk group can balance the loading and backup with each other. The LACP feature is usually used when higher bandwidth is needed for the backbone network. This is a cost-effective way for transfering much more data.



Auto Topology Discovery & Efficient Management through LLDP and JetView Pro i²NMS

JetNet 5710G supports topology discovery or LLDP (IEEE 802.1AB Link Layer Discovery Protocol) function that can help users to discover multi-vendor's network devices on the same segment by an NMS system, which support LLDP function. With LLDP function, NMS can easily maintain the topology map, display port ID, port description, system description, VLAN ID, etc.. Once a link failure happens, the topology changed events are updated to the NMS to help users easily maintain the network system. Besides the SNMP and LLDP protocols, JetNet 5710G series efficiently works with the Korenix patented JetView Pro i2NMS, which in addition to the auto-topology discovery, also delivers MSRTM group management, group IP assignment, firmware upgrade, configuration file backup/ restore ,SNMP MIB Browser / compile, etc. Furthermore, users can export the topology map to diverse formats, such as JPG, BMP, PNG and PDF, for easily managing and trouble-shooting the network. The user-friendly software allows administrators to discover devices automatically and efficiently manage the performance of the industrial network.



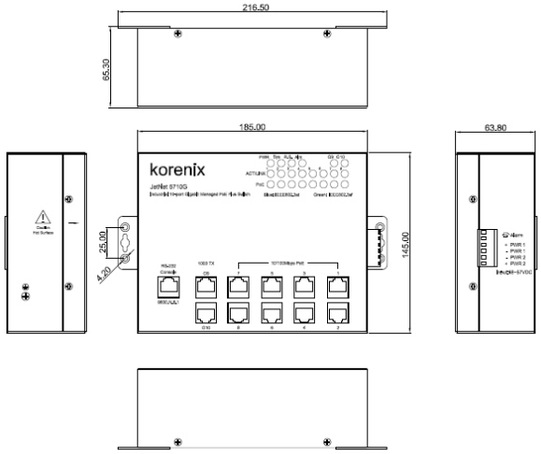
Outstanding Management and Enhanced Security

The JetNet 5710G provides various network control and security features to ensure the reliable and secure network connection. To optimize the industrial network environment, JetNet 5710G series supports advanced network features, such as Tag and Port-based VLAN, IGMP Snooping, Quality of Service (QoS), Link Aggregation Control Protocol (LACP), Rate Control, etc. The PoE switch can be smartly configured through JetView, JetView Pro (Korenix's advanced management utility), Web Browser, SNMP, Telnet and RS-232 local console with its command like interface.

The failure notifications are sent through e-mail, SNMP trap, Local/Remote system log, Fault event alarm relay. Furthermore, the built-in watchdog timer of JetNet 5710G allows users to recover system when CPU failure is detected.

To avoid hacker's attacks and ensure the secure data transmission, JetNet 5710G series features DHCP client, DHCP server with IP and MAC binding, 802.1X Access Control, SSH for Telnet security, IP Access table, port security and many other security features.

Dimensions



JETPoE

Specification

Technology

Standard:
IEEE 802.3 10 Base-T Ethernet
IEEE 802.3u 100 Base-TX Fast Ethernet
IEEE 802.3ab 1000 Base-T
IEEE 802.3x Flow Control and Back-pressure
IEEE 802.3af Power over Ethernet
IEEE 802.3at LLDP Power over Ethernet plus
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
IEEE 802.1p Class of Service (CoS)
IEEE 802.1Q VLAN and GVRP
IEEE 802.1D-2004 Rapid Spanning Tree Protocol (RSTP)
IEEE802.3ad Link Aggregation Protocol (LACP)
IEEE802.1x Port Based Network Access Protocol

System Performance

Switch Technology: Store and Forward Technology with 32Gbps Switch Fabric.
System Throughput: 14,880pps for 10M Ethernet, 148,800pps for 100M Fast Ethernet, 1,488,100 for Gigabit Ethernet
CPU performance: 32 bits ARM-9E running at 180 Mhz and performance up to 200MIPS; Embedded hardware based watch-dog timer.
System Memory: 8M bytes flash ROM, 64M bytes SDRAM. Transfer packet size64 bytes to 1632 bytes (includes 1522 bytes VLAN Tag).
MAC Address: 8K MAC address table.
Packet Buffer: 1M bits shared memory for packet buffer.
Forwarding performance: 14,880 PPS for Ethernet and 148,800 PPS for Fast Ethernet, 1488,100 for Gigabit Ethernet
Relay Alarm: Dry Relay output for port event or PoE event

System Management

Configuration and monitoring interface: Telnet, local RS-232 console, Web- browser interface, SNMP, Trap and SMTP interface.
Cisco-Like CLI, Telnet, Web, TFTP/Web Update for firmware and configuration backup and restore, DHCP Client, warm start, factory default, Admin password, Port Speed/Duplex Control, status, statistic, MAC address table display, static MAC, Aging time, SNMP v1, v2c, v3, Traps and RMON groups 1,2,3,9.
Telnet & Local Console: Supports command line interface with Cisco like commands and maximum 4 sessions; the telnet interface also supports SSH.
SNMP: v1, v2c, V3 with SNMP trap function, up to 4 trap stations and manual configuration of the trap server IP address.
SNMP MIB: MIBII, Bridge MIB, Ethernet-like MIB, VLAN MIB, IGMP MIB, Korenix Private MIB.
Korenix Utility: Supports JetView and JetView Pro with IEEE 802.1AB Link Layer Discovery Protocol for device and link auto-topology discovery.
Network Time Protocol: Supports NTP protocol with daylight saving function and localized time sync function.
Management IP Security: IP address security to prevent unauthorized access
E-mail Warning: 4 receipt E-mail accounts with mail server authentication
System Log: Supports both Local or remote Server with authentication

Network Performance

Port Configuration: Port link Speed, Link mode, current status and enable/disable.
Port Trunk: IEEE 802.3ad port aggregation and static port trunk; trunk member up to 6 ports and maximum 4 trunk groups, including Gigabit Ethernet port.
VLAN: IEEE 802.1Q VLAN with GVRP. 64 VLAN groups, VLAN ID from 1 to 4094.
Supports Trunk, Hybrid and Link access modes.
Class of Service: IEEE 802.1p class of service; per port 4 priority queues.
Traffic Prioritize: Supports 4 physical queues, weighted fair queuing (WRR) and Strict Priority scheme, which follows 802.1p COS tag and IPv4 ToS/ Diffserv information to prioritize the traffic of your industrial network.
IGMP Snooping: IGMP Snooping v1/v2c /v3 for multicast filtering and IGMP Query mode; also supports unknown multicasting process forwarding policies- drop, flooding and forward to router port.
Rate Control: Ingress/Egress filtering for Broadcast, Multicast, Unknown DA or All packets.
Port Mirroring: Online traffic monitoring on multiple selected ports
Port Security: Port security to assign authorized MAC to specific port
DHCP: DHCP Client, DHCP Server with IP & MAC Address binding and DHCP Relay (option 82).
IEEE 802.1x: Port based network access control

Power Over Ethernet

PoE Standard: IEEE 802.3af Power over Ethernet , IEEE 802.3at Power over Ethernet plus
PoE Architecture: End-span wiring architecture.
PoE Operating Mode: IEEE 802.3af /at Auto Mode: Automatically detects power consumption level by Classification ID and controls high power by IEEE 802.3at LLDP protocol (note-1).
Forced Mode: Forced PoE powering with Power limiting protection.
PoE forwarding conductor: RJ-45: V+ (1,2), V- (3,6)
PoE Forwarding ability: IEEE 802.3af: 15.4w x8 / 70C
IEEE 802.3at: 30w x8 / 50C
- system will auto calculate total power and shut down low priority port when drawing current is over the power supply

Network Redundancy

Multiple Super Ring (MSR)™: New generation Korenix Ring Redundancy Technology, Includes Rapid Super Ring, Rapid Dual Homing, TrunkRing™, MultiRing ™ and backward compatible with legacy Super Ring™.
Rapid Dual Homing (RDH)™: Multiple uplink paths to one or multiple upper switch
TrunkRing™: Integrates port aggregation function in ring path to get higher throughput ring architecture
MultiRing™: Couple or multiple up to 16 Rapid Super Rings

Rapid Spanning Tree: IEEE802.1D-2004 Rapid Spanning Tree Protocol. Compatible with Legacy Spanning Tree and IEEE 802.1w. The RSTP function can be also deployed on the RSR ring port to deliver more redundancy

Interface

Enclosure Port:
10/100 TX port:
8 –port RJ-45 with 4 PSE inject function
10/100/1000 TX port :
2-port RJ-45
Console port :
RJ-45 type RS-232 interface
Power & Alarm Relay port:
6-pin removable terminal block connector and 1embedded alarm relay output
Cables:
10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable, EIA/TIA-568B 100-ohm (100m)
100 Base-TX: 2-pair UTP/STP Cat. 5 cable, EIA/TIA-568B 100-ohm (100m)
1000 Base-TX: 4-pair UTP/STP Cat. 5 cable, EIA/TIA-568B 100-ohm (100m)
RS-232 & Alarm Output: RS232: TxD (Pin 1), RxD(Pin 2), Signal Ground (Pin 5)
Alarm Output: located on terminal block
LED Indications:
10/100 RJ-45: Link /Activity(Green)
Gigabit Copper: Link/Activity(Green)
PoE port: IEEE 802.3af 15.4w (Green on: Power forwarding; Blinking: PoE Abnormal) / IEEE 802.3at 30w (Blue on: Power forwarding; Blinking:PoE Abnormal)
Power: System Power ready (Green on)
Sys: System Ready (Green On)
Alm: Alarm Relay Active (Red On)
R.M.: Ring Master (Green on),
Ring Failure occurred (Yellow on)
Power input interface: 6-pin removable terminal block
Alarm Output: Dry Alarm Relay output integrated in 6-pin terminal block
Alarm Relay activated once pre-configured event occurred. (1A/ DC 30V)

Power Requirements

System Power: Input Voltage: DC 48~57V, redundant input with reverse protection
Power Consumption: 12 watts without PD loading

Mechanical

Installation: Wall Mount
Case: Steel Metal case
Dimension (mm):
185 (W) x 145 (H) x 63.8 (D) w/o mounting kit
296.5 (W) x 145 (H) x 63.8 (D) w/mounting kit

Environmental

Operating Temperature:
-40 ~70°C: 15.4w PD loading x 8 ports
-40 ~60°C: 30w PD loading x 8 ports (TBU)
Operating Humidity: 0% ~ 90%, non-condensing
Storage Temperature: -40 ~ 85°C
Hi-Pot: AC 1.5KV for all ports and power

Regulatory Approvals

EMC:
IEC 61000-6-2, IEC 61000-6-4
Compliance with EMC inquires of
EN50155 standard – EN50121-4, EN50121-3-2,
EMI:
FCC Class A, CE/ EN55022, CISPR-11
EMS:
CE/EN55024
EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-9
Vibration & Shock: Compliance with IEC 61373 for Railway and Rolling stock
Warranty: Global 5 years

Notes-1: IEEE 802.3at Link Layer Discovery Protocol type Power over Ethernet, using the LLDP packet to request High power forwarding with PSE device.
TBU: To be update in the further.

Ordering Information

JetNet 5710G Industrial 8 PoE + 2G Managed High Power IEEE802.3at PoE Switch

Includes:

- JetNet 5710
- Wall /Panel Mounting kits with screw x 1 set
- Quick Installation Guide x1
- CD user manual x 1