JetNet 6810G-M12 / 6810G-RJ

Industrial 8 PoE + 2G Managed M12/RJ45 Booster PoE Switch

JetNet 6810G-M12 JetNet 6810G-RJ

RoHS

8PoE+2G | 24-57VDC Booster | 120W | MSR < 5ms | 4+1G Rings

LLDP & JetViewPro | M12/RJ45 | EN 50155 | -40~60°C

- 8 10/100 Base TX PoE and 2 Gigabit uplink ports
- Solid M12 D-coded (JetNet 6810G-M12) or Rugged RJ45 Ethernet connectors (JetNet 6810G-RJ) to protect from vibration applications such as PoE in Tram, Rail, or Highway
- 8 PoE ports support IEEE 802.3af standard with 120W total power budget / max. 15.4W per port
- Built-in Isolated 24V to 57V DC PoE Booster for vehicle use
- 32G switch Fabric, 8K MAC address
- 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
- Auto Power Budget Control with Thermal Detection
- Redundant DC Power Inputs and Relay Output
- AC 1.5KV Hi-Pot Isolation Protection for ports and power
- EN50155 compliance (applying)
- -40~60°C wide operating temperature

Overview

Korenix JetNet 6810G series, the revolutionary Gigabit Managed Industrial Power over Ethernet Switches with patented 24V to 48V Power booster technology, are specifically designed for making the deployment of standard PoE IP cameras feasible on buses, railcars, ships, harbors, etc. With the smart thermal detection function, the JetNet 6810G isolated power booster becomes an intelligent and reliable power control device for PoE vehicle applications in harsh environments with high temperature variations. The eight 10/100 TX PoE injector ports can deliver up to 120W power per unit and 15.4W per port by IEEE 802.3af standard 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. To work under vibration and shock environments, the industrial D-code M12 connectors (JetNet 6810G-M12) or rugged RJ connectors (JetNet 6810G-RJ) provide exceptional solid Ethernet and PoE connections.

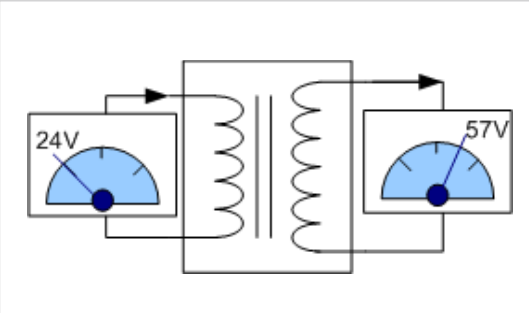
Driving the IP Surveillance Market

Since the ratification of the Power over Ethernet 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. The JetNet 6810G series is equipped with the new PSE solution, compliant with IEEE 802.3af standard and forced powering mode. It supports 8 PoE ports in End-span wiring architecture with up to 15.4w powering ability per port and 120W per unit, to drive the IP cameras for cross–street monitoring or WiMAX systems for internet access at train stations, airports or Hot-spots.

Power Budget Limitation with Priority Control

The JetNet 6810G series 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.

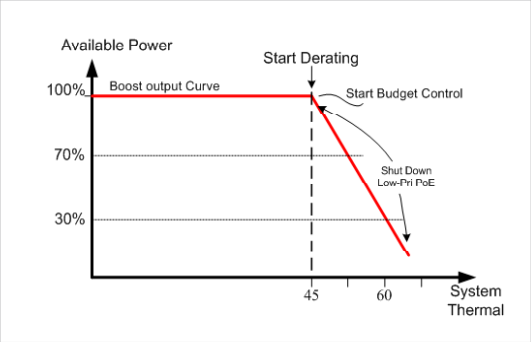
Isolated 24~57V DC PoE Booster for Vehicle Deployment



JetNet 6810G series is designed with the Korenix patented DC 24V to 48V boost technology for vehicle PoE applications where DC 48V power supply is not available. The DC booster supports High-pot isolation feature to protect the device from the lighting and surge of the Ethernet cable and meets IEEE mandate safety requirement of Power over Ethernet and UL safety requirement of TNV-1 circuit. The isolated system design allows JetNet 6810G series efficiently powering outdoor PD equipments, such as Wireless AP, WiMax systems, Outdoor IP cameras and other PoE-enabled devices. With the booster technology it provides fast, easy and cost-effective solution for configuring PoE networks on transportation and automation applications.

Smart Thermal & Power Booster Protection

As states the rule of "The Principle of Conservation of Energy", the energy remains constant and cannot disappear in any isolated system, but can be converted to another form. This rule is the same in electrical circuit, where it can generate heat and become higher when the loading is more and therefore, can cause a system shut-down. To avoid this situation, JetNet 6810G series adopts thermal detector to check the temperature of DC booster and adjust the available PoE output to ensure the DC booster is working under safety temperature. This behavior refers to the output curve of power booster; Once the temperature exceeds the limit, system will turn off the PSE port. This feature makes JetNet 6810G PoE switch an intelligent power control device that helps you to maintain the PD devices under specific temperatures.

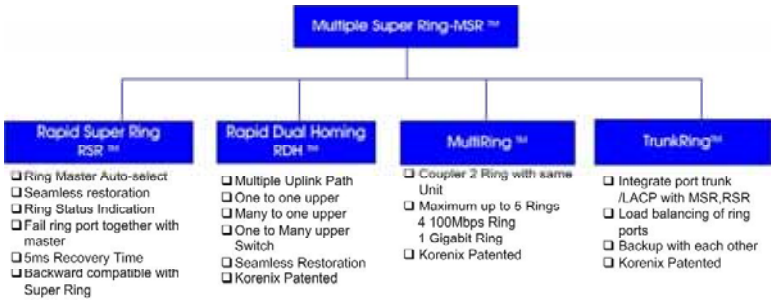


Solid RJ45/M12 Connectors against Vibration and Shock

In most occasions, PD devices installed in industrial environments are being subjected to vibration, shock, dust and other environmental threats. Korenix has designed JetNet 6810G series with RJ and M12 connectors resistant to vibration and shock in order to best fulfill the requirements of various applications. Equipped with 8 M12 D-coded connectors, JetNet 6810G-M12 series can be used for upgrading industrial applications while delivering power along with data to PD devices in industrial machinery, factory automation, railways, marine applications etc. For outdoor networking applications, such as telecom, outdoor surveillance, wireless AP connections, JetNet 6810G-RJ PoE switches with 8 rugged RJ45 Ethernet connectors can be ideal solutions.

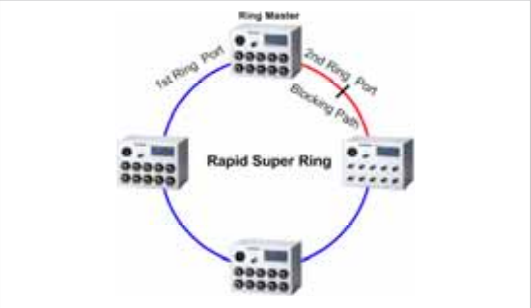
Comprehensive Redundant Solutions – Multiple Super Ring (MSR™)

The JetNet 6810G supports new generation ring technology - MSR™ (Multiple Super Ring) which includes various new technologies for different network redundancy applications and structures. The JetNet 6810G allows aggregating up to 5 Rapid Super Rings, including 4 Fast Ethernet plus 1 Gigabit Ethernet Rings. With the MSR™ 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 MSR™ 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 RDH™ (Rapid Dual Homing)(RDH™) technology. By integrating MSR™ 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.



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.

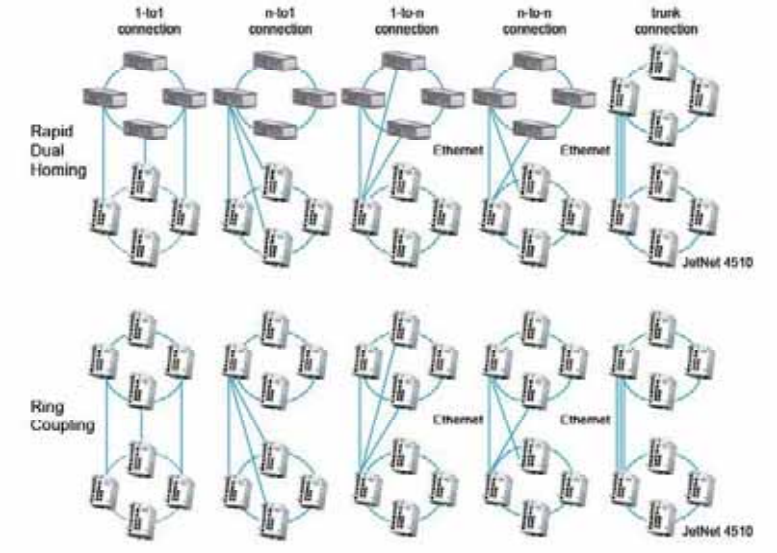


Seamless Ring Port Restoration™

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.

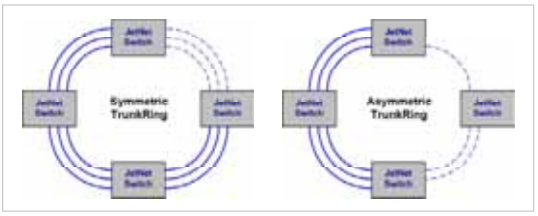
Rapid Dual Homing (RDH™) Technology

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.



TrunkRing™

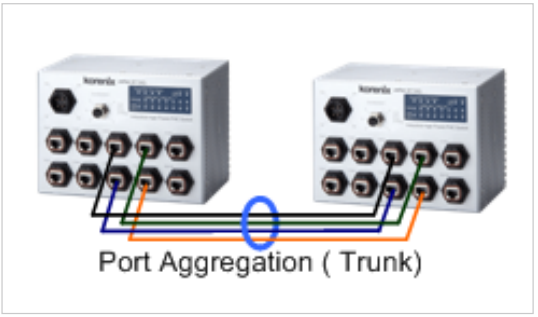
runkRing is a new feature in MSR which merges the two technologies of RSR and link aggregation. It takes advantages of aggregation to enhance the link redundancy, while increasing the link speed. The ring will open only if all the aggregated links are broken. Link aggregation can be achieved by either 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.

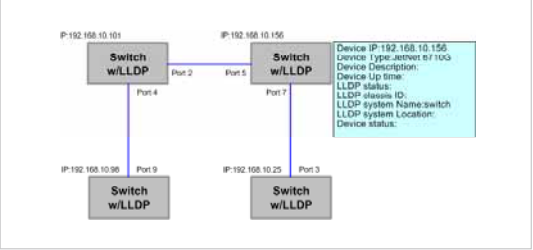
Link Aggregation Control Protocol

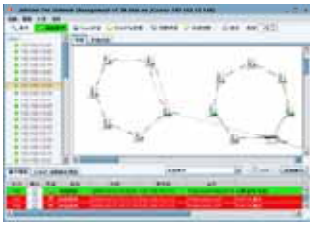
Link Aggregation Control Protocol allows users grouping multiple Ethernet ports in parallel to increase the link bandwidth. The aggregated ports can be viewed as one physical port, so that the bandwidth is higher than just one single Ethernet port. The member ports of the same trunk group can balance 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 6810G 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 6810G 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.



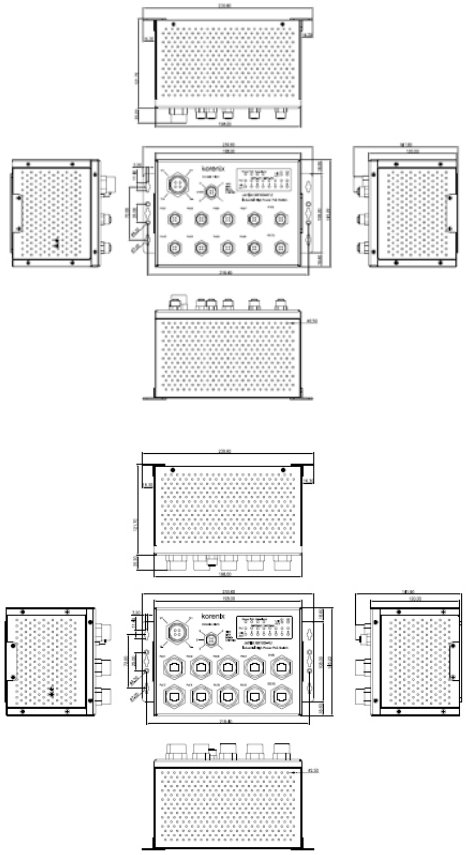


Outstanding Management and Enhanced Security

The JetNet 6810G series provides various network control and security features to ensure the reliable and secure network connection. To optimize the industrial network environment, JetNet 6810G series supports advanced network features, such as VLAN, IGMP Snooping, Quality of Service (QoS), Link Aggregation Control Protocol (LACP), Rate Control, etc.

To avoid hacker's attacks and ensure the secure data transmission, JetNet 6810G 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



Specification

Technology

Standard:

IEEE 802.3 10 Base-T Ethernet
IEEE 802.3u 100 Base-TX Fast Ethernet
IEEE 802.3ab 1000 Base-TX
IEEE 802.3x Flow Control and Back-pressure
IEEE 802.3af Power over Ethernet
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)
IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
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.
Transfer performance: 14,880pps for Ethernet and 148,800 for Fast Ethernet, 1488,100 for Gigabit Ethernet
Environment Monitoring: Embedded board-level thermal detector for system temperature monitoring.
Relay Alarm: Dry Relay output with 2A /30V DC or 0.5A/125V AC ability

System Management

Configuration and monitoring interface: Tenet, 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 reboot, reset to 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, trap station up to 4 and can be manually configured 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 finding and link topology discovery
Network Time Protocol: Supports NTP protocol with daylight saving function and localize 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 of 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 8 ports and maximum 5 trunk groups include 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 support 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 agent (option 82).
IEEE 802.1x: Port based network access control.
Power over Ethernet: IEEE 802.3af / IEEE 802.3at; End-span wiring architecture
PoE Operating Mode: Auto mode:Auto detects and powering by IEEE 802.3af behaviors
Forced mode: User configured power consumption without detection, classification
PoE forwarding conductor:
JetNet 6810G-RJ
RJ-45: V+ (1,2), V- (3,6)
JetNet 6810G-M12
M12 D-code: V+ (1,2), V- (3,4)
Power forwarding ability: IEEE 802.3af: 15.4w
Power Budget Control: Port Based budget control with priority control, 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™: Integrate port aggregate function in ring path to get higher throughput ring architecture
MultiRing™: Couple or multiple up to 16 Rapid Super Rings, JetNet 6810G supports up to 4 100M rings and 1 Gigabit ring in single switch.
Rapid Spanning Tree: IEEE802.1D-2004 Rapid Spanning Tree Protocol. Compatible with Legacy Spanning Tree and IEEE 802.1w

Interface

Enclosure Port:
10/100 TX port
JetNet 6810G-RJ: 8 x rugged RJ-45
JetNet 6810G-M12: 8 x M12-D-Code 4-pin Female
10/100/1000 TX port
JetNet 6810G-RJ: 2 x rugged IP-67 RJ-45
JetNet 6810G-M12: 2 x M12-A-Code 8-pin Female
Console port & Alarm Relay Output
M12 A-code Male for RS-232 and relay alarm output.
Power port: CTG-4F 4-pin Rugged IP-67 Connector
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: M12 A-code female 5-pin connector, TxD (Pin 1), RxD(Pin 2), Signal Ground (Pin 5)
Alarm Output :M12 A-code female 5-pin connector 3, 4
LED Indicators: 10/100 RJ-45: Link /Activity(Green), Full duplex/Collision (Yellow)
Gigabit Copper: Link/Activity(Green)
PoE port: IEEE 802.3af 15.4w
(Green on: Power forwarding; Blinking: PoE Abnormal)
IEEE 802.3at High Power High Power
(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)
Sys: System Ready ((Green on: system ready)

Power Requirements

System Power:
JetNet 6810G-M12/JetNet 6810G-RJ
Input Voltage: DC 48~57V, redundant input with reverse protection.

Mechanical

Installation: DIN-Rail mount or Wall Mount
Case: Steel metal and aluminum case
Dimension (mm):
JetNet 6810G-M12/ 6810G-RJ : 198 (W) x 145.2 (H) x 74 (D) w/o mounting kit
JetNet 6810G-M12/ 6810G-RJ : 230.6 (W) x 145.2 (H) x 74 (D) w/mounting kit

Environmental

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

Regulatory Approvals

EMI :
FCC Class A, CE/ EN55011, CISPR-11
Radiation, Conduction
EMS :
EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11.
Compliance with the EMC of EN50155
Railway applications -Electronic equipment used on rolling stock – EN 50121-3-2 /EN50121-4
Vibration & Shock: Compliance with IEC 61373 for Railway and Rolling stock.
Warranty: Global 5 years

Ordering Information

JetNet 6810G-M12 Industrial 8 PoE + 2G Managed M12/RJ45 Booster PoE Switch
Includes:

- JetNet 6810G-M12
- M-12 D-code to RJ-45 Ethernet Cable x1
- M-12 A-code 5-pin to DB-9 console cable x1
- M12 D-code 4-pole Field Assemble able Connecter x 8
- M12 A-code 8-pole Field Assemble able Connector x2
- Field Assemble able power connector x1
- Cap of M12 connector (tighten on the switch) x 11
- Wall /Panel Mounting kits with screw x 1 set
- Quick Installation Guide x1
- CD user manual x 1

JetNet 6810G-RJ Industrial 8 PoE + 2G Managed M12/RJ45 Booster PoE Switch
Includes:

- JetNet 6810G-RJ
- M-12 A-code 5-pin to DB-9 console cable x1
- Cap of M12 connector (tighten on the switch) x1
- Rugged RJ45 Field Assemble able Connecter x10
- Cap of rugged RJ-45 connector (tighten on the switch) x 10
- Field Assemble able power connector x1
- Wall /Panel Mounting kits with screw x 1 set
- Quick Installation Guide x1
- CD user manual x 1