

INDUSTRIAL ETHERNET SWITCH

Industrial up to 16 FE/16 PoE, 4GbE, Managed L3 Routing PoE Switch

JetNet 7500-HVDC series



The JetNet 7500-HVDC series is a Layer-3 routing PoE Switch series with up to 16 ports Fast Ethernet M12 D-Code, 4 ports Gigabit Ethernet M12 X-Code interfaces, and the Fast Ethernet also embedded up to 16 ports PSE for PoE application. The system supports wide range power input to compliance most of modern train, and secure the passengers' safety with isolated electrical power system design. The M12 connectors integrate push-pull and typical type. It can help installer save time in filed site. The system also design with Ingress protect grade 41/54 to offer anti-dust, water-proof, anti-vibration/shock for the railcars, MRT trains. The up to 16 PSE interface enabled system to powering remote IP cameras, low power devices or LTE/WiFi device through Ethernet cable. With the JetNet 7500-HVDC series L3 PoE Switch, it can enlarge and connective all of application for modern train Ethernet communication system.

HVDC
110VPoE
120WL3 IP
Route

Features

- ▶ Up to 16 ports Fast Ethernet M12 D-Code, 4 Gigabit M12 X-Code
- ▶ Up to 16 IEEE 802.3at PSE embedded in Fast Ethernet
- ▶ Non-Blocking, High Speed Network Switching Fabric
- ▶ 2 Gigabit Ethernet interfaces support Device Fault Bypass function
- ▶ Network Redundancy - MSR (Multiple Super Ring), ITU-T G.8032 ERPS, RSTP, MSTP, Super Chain
- ▶ Fully Device Management - SNMP v1/v2c/v3, RMON, Web UI, Telnet and Local Console
- ▶ Friendly Device and Network Topology recovery utility - Korenix View, Korenix NMS
- ▶ Layer 2 Network Performance - IEEE802.1Q VLAN, Private VLAN, Trunk, Traffic Filtering, DHCP Server/Client, Traffic Prioritize, Forwarding Rate Control
- ▶ Layer 3 Network Routing Protocols - Static/Dynamic Route, VLAN Routing, Multicast Routing
- ▶ Advanced Cyber Network Security - MAC security, IEEE 802.1x Port Based access control , IEEE 802.1x Radius Server authentication, 802.1x MAB, Distributed Denial of Service (DDoS), IP Source Guard, Denial of ARP Inspection, TACACS+, RADIUS, ACL.
- ▶ IEC-61375-2-5 Train Topology Discovery Protocol (TTDP)*
- ▶ Hardware Watchdog for System Auto-Recovery
- ▶ High Level Electromagnetic interference immunity
- ▶ Compliance with Railway EN50155:2017, EN50121-4, EN 50121-3-2, Heavy Industrial EMC and CE, FCC for the Train/MRT IP Surveillance application

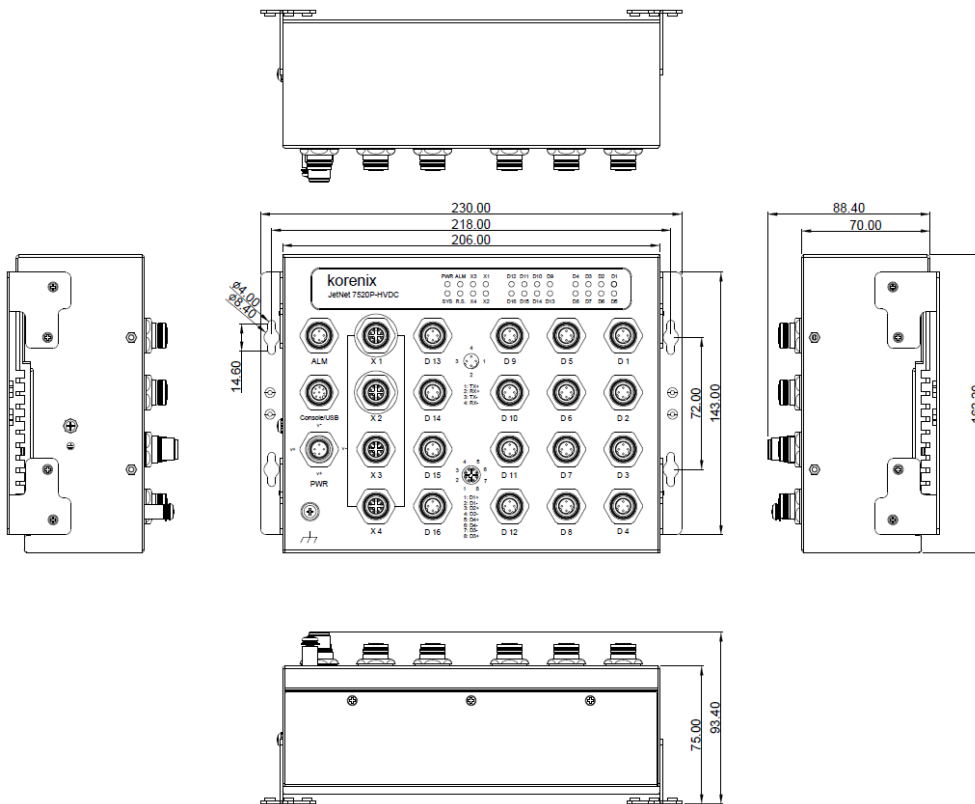
Technology	
Standard	IEEE 802.3 10 Base-T Ethernet IEEE 802.3u 100 Base-TX Fast Ethernet IEEE 802.3ab 1000 Base-T IEEE 802.3af Power over Ethernet IEEE 802.3at High Power PoE with 2-Event classification IEEE 802.3x Flow Control and Back-pressure IEEE 802.1AB Link Layer Discovery Protocol (LLDP) IEEE 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) IEEE 802.3ad Link Aggregation Protocol (LACP) IEEE 802.1x Port Based Network Access Protocol
Performance	
Chipset maximum capacity	Store and Forward technology with 32Gbps switching fabric
Switch Technology	Store and Forward technology with 11.2Gbps switching fabric (JetNet 7520P-HVDC)
CPU performance	ARM A9 1GHz with Hardware based Watch-dog timer with 10s reset down-counter
System Memory	32M bytes flash ROM, 256M bytes system RAM
Transfer packet size	64 bytes to 9K (9216) bytes Jumbo Frame
MAC Address	16K
Packet Buffer	1.5M Bytes shared memory for packet buffer with intelligent memory management unit for burst data traffic
Transfer performance	14,880 pps @10Mbps 148,800 pps @100Mbps 1,488,100 pps @1000Mbps
Management	
Management Interface	Telnet with SSH, Web Browser with SSL, SNMP V1/V2c/V3 with SNMP Trap (up to 4 trap stations), RMON (Group 1,2,3,9) for in-band management. Local RS-232 M12 connector for out-band management. Additional USB host interface for configuration Backup and Restore.
Management Security	The maximum management session up to four, and support management Host IP secure feature to prevent unauthorized remote login
SNMP MIB	MIB-II, Bridge MIB, Ethernet-like-MIB, VLAN MIB, IGMP MIB, Private MIB
NMS	Windows based NMS System -Korenix NMS and Korenix View for device discovery and network topology auto construct
Network Time Protocol	NTP with daylight saving and localize time sync function
Management IP Security	Predefined Host IP address for management host login security
E-mail Warning	4 Receipt E-mail accounts with E-mail server authentication
System Event Log	2 event log modes, Local and remote Log Server with authentication
System Auto Maintenance	System Power-On with configuration update, firmware auto upgrade when USB/M12 Flash installed
Network Performance	
Port Configuration	Port link Speed, Link mode, current status and enable/disable
Port Trunk	IEEE 802.3ad Link Aggregation Control Protocol (LACP) and Static port trunk; trunk member up to 8 ports in one group, maximum 128 trunk groups
VLAN	IEEE 802.1Q Tag VLAN with 4K VLAN Entries and provides 2K GVRP entries; 3 VLAN link modes- Trunk mode, Hybrid mode and Link access mode
Private VLAN	The Private VLAN is special for group uplink access with independent port security. With the private VLAN function, each VLAN community is isolated and only exchange by high level device with primary VLAN community
IEEE 802.1Q QinQ	Supports Double VLAN tag for VLAN isolation and security
IEEE 802.1p	The Ethernet Switch MAC controller supports IEEE 802.1p Class of Service function; Per interface with 4 queues
IP Multicasting	Supports 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, 1K Multicasting Groups
Rate Control	Ingress/Egress filtering for broadcast, multicast, unknown DA or all packets

Port Mirroring	On-line traffic monitoring on multiple selected ports
DHCP	DHCP Server DHCP Client DHCP Relay Agent
IEEE 802.1x/ Port Security	Port based network access control, and authenticated by localize pre-defined MAC address or remote RADIUS Server
SNTP*	Simple Network Time Protocol
Power over Ethernet	IEEE 802.3af/at, End-Span wiring architecture
PoE operating mode	Auto Mode: IEEE 802.3af/at behaviors with IEEE 802.3at 2-Event Classification for high power IEEE 82.3at PD device Forced Mode: User configured Power consumption budget control with IEEE 802.3 PoE /PD detection, or forced without PD detection
PoE forwarding conductor	M12 D-Code (Port 1-16): V+(1,3), V- (2,4)
Power forwarding capability	IEEE 802.3af:15W, IEEE802.3at:30W
PoE System Power Budget	Power Budget Reserve by PD declaration. The power budget control system will reserve power for connected PD device, once latest PD device (D16) claimed power over the system surplus power, then the latest PoE will not be active. System Power over Ethernet Power Budget: 120Watts (Max.) / 75°C
Network Redundancy	
Multiple Super Ring (MSR™)	New generation Korenix Ring Redundancy Technology, Includes Rapid Super Ring, Rapid Dual Homing, TrunkRing™, MultiRing™, Super Chain™ and backward compatible with legacy Super Ring™
Rapid Dual Homing (RDH™)	Multiple uplink paths to one or multiple upper Switch, up to 256 Groups RDH Peer protection
TrunkRing™	Integrate port aggregate function in ring path to get higher throughput ring architecture
MultiRing™	Supports redundant ring up to 10 rings in one device includes 8 Fast Ethernet rings and 2 Gigabit Ethernet rings
Super Chain	It is new ring technology with flexible and scalability, compatibility, and easy configurable. The ring includes 2 types of node Switch - Border Switch and Member Switch
Rapid Spanning Tree	IEEE 802.1D-2004 Rapid Spanning Tree Protocol; it compatible with Legacy Spanning Tree and IEEE 802.1w
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
ITU-T G.8032 ERPS	Support ITU-T G.8032 ERPS V1 single ring topology, and ERPS v2 multiple rings with ladder topology
System Fault Bypass	Link Partner Bypass function on Gigabit port X1, X2. Both of Gigabit ports will form as inter-connected mode when switch power shut-down or unstable / non-ready
Routing Protocols	
IP Routing	Supports Default Static and Dynamic Route
Virtual LAN Routing	Incorporate both of IEEE802.1Q Bridge and Routing Function
Routing Information Protocol	Hop-Based IP Routing with RIPv1 and RIPv2; 1K / 512 for IPv4/IPv6 routing
HW IP Routing Table	512 Routing entries
IGMP	Multicast Group Management Protocol support IGMP v1,v2, v3
Multicast Routing	256 IP Multicast Routing entries
DVMRP	HOP-Based multicast routing protocol, short of distance vector multicast routing protocol
PIM-DM	Multicasting Routing Protocol, Short of Protocol Independent Multicast-Dense mode
VRRP	Short of Virtual Route Redundancy Protocol, Automatically Backup Routing route to specified router
OSPF	Link State based IP routing protocol support OSPFv1/V2/V3
IEC-61375-2-5 TTDP*	Support Train Topology Discovery Protocol to automatically reconfigure for topology changes

Security	
Cyber Security	The Cyber Security function includes- DHCP Snooping protection, Dynamic ARP inspect protection, IP Source Guard (IPSG), Distribute Denial-of-Service (DDoS), IEEE 802.1x MAB for non-IEEE 802.1x compliant device.
ACL	Up to 2K FP rules with 8 slices allowing 8 parallel lookup and match
TACACS+	Support
Interface	
Enclosure port	100Mbps Fast Ethernet port (D1-D16): up to 16 x M12 D-Code Female connectors with 16 ports IEEE 802.3at PoE/PSE (D1-D16) M12 D-Code (Conductor #): (#1) TX+/PoE V+, (#2) RX+/ PoE V-, (#3) TX-/PoE V+, (#4) RX-/ PoE V- 1000Mbps Gigabit Ethernet port (X1-X4): 4 x M12 X-Code Female Connectors M12 X-Code (Conductor #): (#1) 0P(D1+)/PoE V+, (#2) 0N(D1-)/PoE V+, (#3)1P(D2+)/PoE V-, (#4)1N(D2-)/PoE V-, (#5)3P(D4+) (#6)3N(D4-), (#7) 2N (D3-), (#8) 2P (D3+) Serial Console/USB: M12 A-Code 8-pin for console and USB Flash Disk Relay : M12 A-Code 4-pin Power input port: M12 A-Code 4-pin Male
Cables	100Base-TX: 2 pairs STP Cat.5e/Cat.6 cable, EIA/TIA-568B 100-ohm (length:100Meters) 1000Base-T: 4 pairs STP Cat. 5e/Cat.6 cable, EIA/TIA-568B 100-ohm (length:100Meters) Power Interface: 4 pins, 18 AWG, Strand Electric power cable
Diagnostic Indicator	100Mbps port: Link/Activity (Green on, Green Blinking), PoE Power on (Amber on)/ Port D1-D16 1000Mbps port: Link/Activity (Green on, Green Blinking) Power: Power on (Green on) Alarm Relay: On (Red on) Sys: Ready (Green on) R.S: Green on (Ring Normal)/Blinking (wrong ring port connective), Amber on (Ring abnormal)/Blinking (ring port failed)
Power Requirements	
System Power	HVDC: DC 110V, Variation voltage from 77 VDC to 137.5 VDC
Power Consumption	23Watts (maximum) without PoE loading, 77 VDC - 137.5VDC 143Watts (maximum) with 120W PoE loading , 77 VDC-137.5VDC
Mechanical	
Installation	Wall Mounting/ Din-Rail Mounting
Dimensions	162.2 mm(H) x 206 mm (W) x 70 mm (D)
Weight	2.522 kg
Material Housing	Steel Metal with Aluminum Heat Sink
Ingress Protection	IP41 protection, IP54 is optional
Environmental	
Operating temperature	-40~75°C: 120Watts with PoE Loading
Operating humidity	0%-90%, non-condensing
Storage Temperature	40~85°C
Hi-Pot	AC 1.2KV for ports-power, power-case
Approvals	
Railway Standard	EN50155:2017, EN50121-1, 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, IEC 62236-4: 2018
Variation/Shock	IEC 61373
Fire protection	Compliance with EN45545-2
Free Fall	Compliance with IEC 60068-2-32
MTBF (hrs)	426,523
Warranty	5 Years

* Plan to extend it in 2021

Dimension (Unit = mm)



Ordering Information

All models include wall mount bracket, QIG and M12 caps. All below standard models are available. IP54 rating or full GbE switch are by request. Please specifically inform your direct sales.

- ▶ JetNet 7520P-HVDC
Industrial 16 FE/PoE, 4GbE with 2GbE HW bypass L3 Routing PoE Switch
- ▶ JetNet 7520-HVDC
Industrial 16 FE, 4GbE with 2GbE HW bypass L3 Routing Switch
- ▶ JetNet 7516P-HVDC
Industrial 12 FE/PoE, 4GbE with 2GbE HW bypass L3 Routing PoE Switch
- ▶ JetNet 7516-HVDC
Industrial 12 FE, 4GbE with 2GbE HW bypass L3 Routing Switch
- ▶ JetNet 7512P-HVDC
Industrial 8 FE/PoE, 4GbE with 2GbE HW bypass L3 Routing PoE Switch
- ▶ JetNet 7512-HVDC
Industrial 8 FE, 4GbE with 2GbE HW bypass L3 Routing Switch

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