

IXR-3224T & IXR-3212S & IXR-3224S

◀ Layer 3 24x GbE RJ45 + 4x GbE Combo + 4x 1G/2.5G/10G SFP

■ Layer 3 12x 100M/1G SFP + 12x GbE RJ45 + 4x GbE Combo + 4x 1G/2.5G/10G SFP

▶ Layer 3 24x 100M/1G SFP + 4x GbE Combo + 4x 1G/2.5G/10G SFP

Preliminary



- Static Routing, RIP v1, RIP v2, IS-IS, BGP v4, OSPF v2, OSPF v3, PIM-SM, PIM-DM, PIM-SSM, DVMRP, VRRP v3
- Support u-Ring, ERPS, MSTP, RSTP, STP, MRP for redundant cabling
- EN62368-1, CE, FCC, EN50121-4, EN61000-6-2, EN61000-6-4 certified
- 4KV surge protection for RJ45 and SFP ports
- Supports negative voltage power input



These Rackmount Managed Ethernet Switches are a hardened design and feature Layer 2 and Layer 3 routing, for the rigorous demands of critical and centralize applications. They provide 32 ports total for Ethernet connectivity with model combinations of (100/1000Base-X) SFP, GbE (10/100/1000BaseTX) RJ-45, GbE Combo (RJ45/SFP) with 10GbE SFP+ uplink ports. This family of switches is ideal for Smart City, surveillance, Intelligent traffic control systems and production automation applications. Redundant power input increases system reliability and the availability of your network backbone.

Features

- Redundant isolated 24/48VDC, or/and isolated 110/220VAC power inputs
- Rugged metal, IP30 protection & Fanless design
- 2.25K VDC Hi-pot isolation protection for Ethernet ports and power
- Provides 14 instances each can support μ -Ring, u-Chain or Sub-Ring for flexible networking applications
- μ -Ring redundancy, recovery time <50ms in 250 devices
- Supports IEEE 1588 PTP V2 for precise time synchronization to operate in Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master, Slave mode by each port
- Provides SmartConfig for quick and easy mass Configuration*
- Supports SmartView for Centralized Management*

*Please see Chapter 1- **Software Management** for more details

Specifications

Standard	IEEE 802.3	10Base-T 10Mbit/s Ethernet	Network Connector	IXR-3224T: 4x 1G/2.5G/10G SFP 4x GbE Combo (100/1000Base-X SFP/10/100/1000Base-T RJ45) 24x 10/100/1000Base-T RJ-45 IXR-3212S: 4x 1G/2.5G/10G SFP 4x GbE Combo (100/1000Base-X SFP/10/100/1000Base-T RJ45) 12x 10/100/1000Base-T RJ-45 12x 100/1000Base-X SFP IXR-3224S: 4x 1G/2.5G/10G SFP 4x GbE Combo (100/1000Base-X SFP/10/100/1000Base-T RJ45) 24x 100/1000Base-X SFP
	IEEE 802.3u	100Base-TX, 100Base-FX, Fast Ethernet		
	IEEE 802.3ab	1000Base-T Gbit/s Ethernet over twisted pair		
	IEEE 802.3z	1000Base-X Gbit/s Ethernet over Fiber-Optic		
	IEEE 802.3ae	10GBase-X		
	IEEE 802.3cb	2.5GBase-X		
	IEEE 802.1d	STP (Spanning Tree Protocol)		
	IEEE 802.1w	RSTP (Rapid Spanning Tree Protocol)		
	IEEE 802.1s	MSTP (Multiple Spanning Tree Protocol)		
	IEC 62439-2	Media Redundancy Protocol (MRP)		
	ITU-T G.8032 / Y.1344	ERPS (Ethernet Ring Protection Switching)		
	IEEE 802.1Q	Virtual LANs (VLAN)		
	IEEE 802.1X	Port based and MAC based Network Access Control, Authentication		
	IEEE 802.3ac	Max frame size extended to 1522Bytes		
	IEEE 802.3ad	Link aggregation for parallel links with LACP(Link Aggregation Control Protocol)		
	IEEE 802.3X	Flow control for full duplex		
	IEEE 802.1ad	Stacked VLANs, Q-in-Q		
	IEEE 802.1p	LAN Layer 2 QoS/CoS Protocol for Traffic Prioritization		
	IEEE 802.1ab	Link Layer Discovery Protocol (LLDP)		
	4094 IEEE 802.1Q VLAN VID			
VLAN ID			Console Port	RS232 (RJ45)
Switch Architecture			Storage Port	USB storage for upload (Type A connector)
Data Processing	Store and Forward		Network Cable	UTP/STP Cat.5e cable or above EIA/TIA-568 100-ohm (100m)
			Protocols	CSMA/CD
			Reverse Polarity Protection	For input power
			Overload Current Protection	Supported
			CPU Watch Dog	Supported
			Power Supply	Redundant 2x AC input power (-AA model) Redundant 1x AC and 1x DC input power (-AD model) Redundant 2x DC input power (-DD model)
				AC input power (A) : Isolated 110/220VAC (85VAC~264VAC) DC input power (D) : Isolated 24/48VDC (18~60VDC), Removable Terminal Block Supports negative voltage power input

Power Consumption	TBD
LED	Per unit: Power 1 (Green), Power 2 (Green), Act/Alarm (Green/Amber), Ring Master (Green) Per RJ-45 port: 10/100 Link/Active (Green) 1000 Link/Active (Amber) Per SFP Fiber port: 100/1000Base-X Link/Active (Amber) Per SFP+ Fiber port: 1000Base-X Link/Active (Amber) 10GBase-X/2.5G Link/Active (Blue)
Jumbo Frame	10K Byte
MAC Address Table	16K
Memory Buffer	3M Bytes for packet buffer
Warning Message	System Syslog, SMTP/ e-mail event message, alarm relay
Alarm Relay Contact	Relay outputs with current carrying capacity of 1A @24VDC, 2-Pin removable terminal block
Digital Inputs	1x input -30 to +1 voltage for state "0" +13 to +30 voltage for state "1"
Operating Temperature	-10 ~ 60°C
Operating Humidity	5% to 95% (Non-condensing)
Storage Temperature	-40 ~ 85°C
Housing	Rugged Metal, IP30 Protection, Fanless
Dimensions	TBD
Weight	TBD
Installation Mounting	19" rack mount

Software Specifications

Topology	
Layer 3 Routing	Static Routing, RIP v1, RIP v2, IS-IS, BGP v4, OSPF v2, OSPF v3, PIM-SM, PIM-DM, PIM-SSM, DVMRP
Layer 3 redundancy	VRRP v3
VLAN	IEEE 802.1q VLAN, up to 4094 IEEE 802.1Q VLAN VID IEEE 802.1q VLAN, up to 4094 Groups IEEE 802.1ad Q-in-Q MAC-based VLAN IP Subnet-based VLAN Protocol-based VLAN (Ethernet, SNAP, LLC) port base-VLAN Port isolation VLAN Translation GVRP (GARP VLAN Registration Protocol) MVR (Multicast VLAN Registration) MVRP GMRP
Link Aggregation (Port Trunk)	Static Dynamic (IEEE 802.3ad LACP), Maximum trunk group: 8 groups Dynamic Dynamic (IEEE 802.3ad LACP), Maximum trunk group: 8 groups Per group up-to 8 port
Spanning Tree	IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP, IEC 62439-2 MRP
Multiple μ-Ring	Up to 14 instances each support μ-Ring, μ-Chain or Sub-Ring for flexible networking applications. Recovery time <50ms The maximum number of device is allowed 250 in a Ring.
Loop Protection	Supported
ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection)	Recovery time <50ms
QoS Features	
Class of Service	IEEE 802.1p 8 active priorities queues for per port
Traffic Classification QoS	IEEE 802.1p based CoS IP Precedence based CoS IP DSCP based CoS
Traffic Classification QoS	QCL (QoS Control List): Frame Type, Source/Destination MAC, VLAN ID, PCP, DEI Protocol, Source IP, IP Fragment, DSCP, TCP/UDP port number
Bandwidth Control for Ingress	Per port based
Bandwidth Control for Egress	Per port based Per queue / Per port shaper
DiffServ (RF 2474) Remarking	
Storm Control	for Unicast, Broadcast, Multicast
IP Multicasting Features	
IGMP / MLD Snooping	IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2

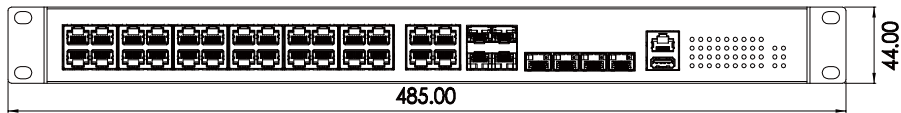
MTBF	TBD (MIL-HDBK-217)
Warranty	5 years
Certification	
EMC	CE (EN55024, EN55032)
EMI (Electromagnetic Interference)	FCC Part 15 Subpart B Class A, CE
Railway Traffic	EN50121-4
Immunity for Heavy Industrial Environment	EN61000-6-2
Emission for Heavy Industrial Environment	EN61000-6-4
EMS (Electromagnetic Susceptibility) Protection Level	EN61000-4-2 (ESD) Level 3, Criteria B EN61000-4-3 (RS) Level 3, Criteria A EN61000-4-4 (Burst) Level 3, Criteria A EN61000-4-5 (Surge) Level 3, Criteria B EN61000-4-6 (CS) Level 3, Criteria A EN61000-4-8 (PFMF, Magnetic Field) Field Strength: 300A/m, Criteria A
Safety	EN62368-1
Hi pot protection	DC 2.25KV for power to chassis ground, Ethernet port to chassis ground
4KV surge protection	Supported for RJ45 and SFP ports
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

Security Features

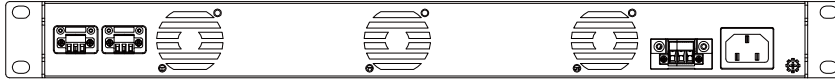
IEEE 802.1X	Port-Based
ACL	Number of rules : up to 50 entries for L2 / L3 L2 : Mac address SA/DA/VLAN L3 : IP address SA/DA, Subnet
RADIUS authentication & accounting	
TACACS+ authentication & accounting, TACACS+ 3.0	
HTTPS, HTTP	Supported
SSL / SSH v2	Supported
User Name Password Authentication	Local Authentication Remote Authentication (via RADIUS / TACACS+)
Management Interface Access Filtering	Web, Telnet / SSH, CLI RS-232 console
Management Features	
CLI	Cisco® like CLI
Web Based Management	
Telnet	Server
SNMP	V1, V2c, V3
SW & Configuration Upgrade	TFTP, SFTP Redundant firmware in case of upgrade failure
RMON	RMON I (1, 2, 3, 9 group), RMON II
MIB	RFC1213 MIB II, Private MIB
DHCP	Server, Client, Relay, Snooping
IP Source Guard	Supported
Mirroring	SPAN (local), RSPAN (remote)
Event Syslog	Client
Warning Message	System syslog, e-mail, alarm relay
DNS	Client
IEEE 1588 PTP V2	Supports 5 operating mode in each port : Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master, Slave
NTP V4.0, SNTP	Client
LLDP (IEEE 802.1ab)	Link Layer Discovery Protocol LLDP-MED
IPv6 Features	
IPv6 Management	Telnet Server/ICMP v6
SNMP over IPv6	Supported
HTTP over IPv6	Supported
SSH over IPv6	Supported
IPv6 Telnet	Supported
IPv6 NTP, SNTP	Client
IPv6 TFTP	Supported

Dimensions

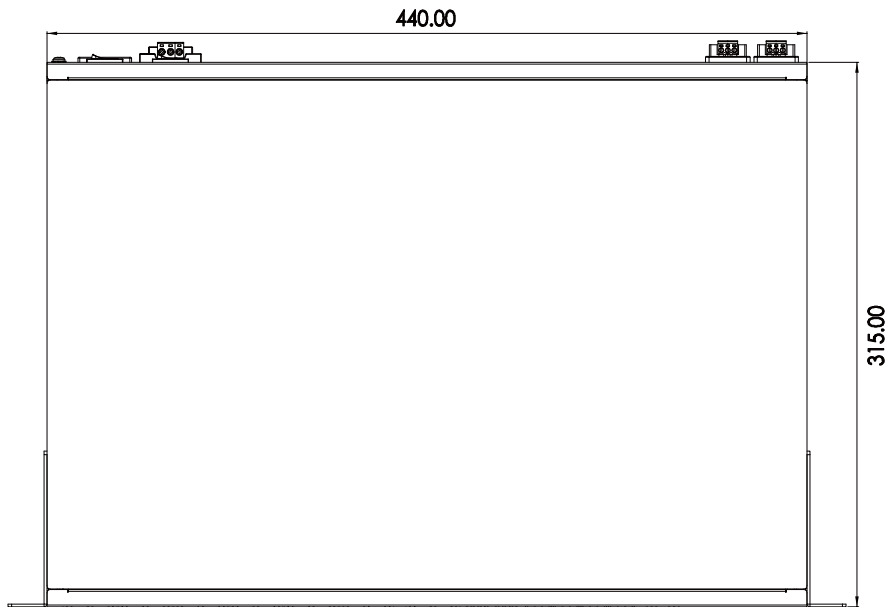
Front View



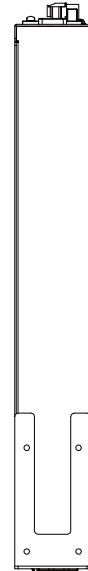
Rear View



Top View



Side View



Ordering Information

Model Name	Total Ports	GbE			10GbE	Input power		Certification			
		10/100/1000 Base-T(X) RJ45	100/1000 Base-X SFP	Combo RJ45/SFP		24/48VDC, -48VDC	110/220VAC	Safety EN62368-1	Railway EN50121-4	Heavy Industrial EN61000-6-2 EN61000-6-4	CE, FCC
IXR-3224T-AA	32	24		4	4		2	V	V	V	V
IXR-3224T-AD	32	24		4	4	1	1	V	V	V	V
IXR-3224T-DD	32	24		4	4	2		V	V	V	V
IXR-3212S-AA	32	12	12	4	4		2	V	V	V	V
IXR-3212S-AD	32	12	12	4	4	1	1	V	V	V	V
IXR-3212S-DD	32	12	12	4	4	2		V	V	V	V
IXR-3224S-AA	32		24	4	4		2	V	V	V	V
IXR-3224S-AD	32		24	4	4	1	1	V	V	V	V
IXR-3224S-DD	32		24	4	4	2		V	V	V	V

Optional Accessories

Industrial SFP Transceiver

The ISFP series of industrial grade SFP modules have been fully tested with the series product for guaranteed compatibility and performance. The best performance can be guaranteed even in mission-critical applications.

ISFP-M9000-85-D(E)	Industrial SFP 10GbE 10GBase-SR, M/M, 300 meter (OM3 fiber), wave length 850nm, DDML, -10~70°C (-40~85°C)
ISFP-S9010-31-D(E)	Industrial SFP 10GbE 10GBase-LR, S/M, 10km, wave length 1310nm, DDML, -10~70°C (-40~85°C)
ISFP-M7000-85-D(E)	Industrial SFP GbE 1000Base-SX, M/M, 500 meter, wave length 850nm, 7.5dB, LC, DDML, -10~70°C (-40~85°C)
ISFP-S7020-31-D(E)	Industrial SFP 1000Base-LX, S/M, 20km, wave length 1310nm, 15dB, LC, DDML, -10~70°C (-40~85°C)
ISFP-T7T00-00-(E)	Industrial SFP 10/100/1000Base-T UTP 100meter, -10~70°C (-40~85°C)
ISFP-M5002-31-D(E)	Industrial SFP 155M 100Base-FX, MM, 2km, wave length 1310nm, 12dB, LC, DDML, -10~70°C (-40~85°C)
ISFP-S5030-31-D(E)	Industrial SFP 155M 100Base-FX, SM, 30km, 1310nm, 19dB, LC, DDML, -10~70°C (-40~85°C)

SFP Naming Rule

