

## IXR-GS24044X

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

**NEW**



- L3 IPv4/IPv6 Static Routing, RIP v2 Dynamic Routing, OSPF V2 Dynamic Routing
- Supports u-Ring, ERPS, EPS, MSTP, RSTP, STP for redundant cabling
- Supports maximum up to 14 u-rings in one device
- EN62368-1, CE, FCC certified
- 4KV surge protection for RJ45 and SFP ports
- Supports negative voltage power input



IXR-GS24044X is a industrial grade, hardened design, Layer 3 switches, built for the rigorous demands of centralized and critical applications. The switch supports 4-ports 10GbE SFP+ and 24x GbE (100/1000Base-X) SFP, plus 4x GbE (10/100/1000Base-TX) ports. The model is fan-less designs with redundant, isolated power supplies (2 AC, 2 DC, AC + DC) and can be mounted in 19-inch EIA standard rack. The model is certified with many industrial-grade standards and are ideal for deployments in harsh environments to deliver mission-critical network services. This product is ideal for Smart City, surveillance, Intelligent traffic control systems and production automation applications.

### Features

- Redundant isolated 24/48/-48VDC (18~60VDC), or/and isolated 110/220VAC power inputs
  - 2.25KVDC Hi-pot isolation protection for Ethernet ports and power
  - STP, RSTP, MSTP, G.8031 EPS, ITU-T G.8032 Ethernet Ring Protection Switching (ERPS) for network redundancy
  - Provides 14 instances each can support μ-Ring, u-Chain or Sub-Ring for flexible networking applications
  - μ-Ring redundancy, recovery time <20ms in 250 devices
  - Supports SmartView™ for Centralized Management\*
- \*Please see Chapter 1- [Software Management](#) for more details

### Specifications

<b>Standard</b>	IEEE 802.3	10Base-T 10Mbit/s Ethernet
	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	10 Gbit/s Ethernet over fiber
	IEEE 802.1d	STP (Spanning Tree Protocol)
	IEEE 802.1w	RSTP (Rapid Spanning Tree Protocol)
	IEEE 802.1s	MSTP (Multiple Spanning Tree Protocol)
	ITU-T G.8032 / Y.1344	ERPS (Ethernet Ring Protection Switching)
	ITU-T G.8031 / Y.1342	EPS (Ethernet 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)
	IEEE 802.3az	EEE (Energy Efficient Ethernet)
<b>VLAN ID</b>	4094	IEEE 802.1Q VLAN VID
<b>Switch Architecture</b>	Back-plane (Switching Fabric): 136Gbps (Full wire-speed)	
<b>Data Processing</b>	Store and Forward	
<b>Network Connector</b>	<b>10GbE SFP+ :</b> 4x 1G/2.5G/10G SFP socket Supports DDMI <b>GbE SFP:</b> 24x 100/1000Base-X SFP socket Support DDMI <b>RJ45:</b> 4x 10/100/1000Base-T RJ-45 Support Auto negotiation speed, Auto MDI/MDI-X function	
<b>Console</b>	RS232, USB type C	
<b>Network Cable</b>	UTP/STP Cat.5e cable or above EIA/TIA-568 100-ohm (100meter)	
<b>Protocols</b>	CSMA/CD	

<b>Reverse Polarity</b>	Protection for input power
<b>Overload Current</b>	Protection Supported
<b>CPU Watch Dog</b>	Supported
<b>Power Supply</b>	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 24/48/-48VDC (18~60VDC), Removable Terminal Block Supports negative voltage power input
<b>Power Consumption</b>	TBD
<b>LED</b>	Per unit: Power 1 (Green), Power 2 (Green), Act/Alarm (Green/Amber), Ring Master (Green) P1~24 Per SFP Fiber port: Giga Link/Active (Amber)  P29~32 Per SFP Fiber port: Giga Link/Active (Amber) 10G Link/Active (Blue)  P25~P28 Per RJ-45 port: 10/100 Link/Active (Green) 1000 Link/Active (Amber)
<b>Jumbo Frame</b>	10K Byte
<b>MAC Address Table</b>	32K
<b>Memory Buffer</b>	4M Bytes for packet buffer
<b>Device Memory</b>	64M Bytes Flash ROM, 1G Bytes RAM
<b>Warning Message</b>	System Syslog, SMTP/ e-mail event message, alarm relay
<b>Alarm Relay Contact</b>	Relay outputs with current carrying capacity of 1A @24VDC, 2-Pin removable terminal block
<b>Operating Temperature</b>	-40 ~ 70°C
<b>Operating Humidity</b>	5% to 95% (Non-condensing)
<b>Storage Temperature</b>	-40 ~ 85°C
<b>Housing</b>	Rugged Metal, IP30 Protection, Fanless

<b>Dimensions</b>	280x 440 x 44mm (D x W x H)
<b>Weight</b>	TBD
<b>Installation Mounting</b>	19" rack mount
<b>MTBF</b>	TBD (MIL-HDBK-217)
<b>Warranty</b>	5 years
<b>Certification</b>	
<b>EMC</b>	CE (EN55032, EN55035)
<b>EMI (Electromagnetic Interference)</b>	FCC Part 15 Subpart B Class A, CE

<b>EMS (Electromagnetic Susceptibility) Protection Level</b>	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 (PFME, Magnetic Field) Field Strength: 300A/m, Criteria A
<b>Safety</b>	EN62368-1
<b>Hi pot protection</b>	DC 2.25KV for power to chassis ground, Ethernet port to chassis ground
<b>4KV surge protection</b>	Supported for RJ45 and SFP ports
<b>Shock</b>	IEC 60068-2-27
<b>Freefall</b>	IEC 60068-2-32
<b>Vibration</b>	IEC 60068-2-6

## Software Specifications

<b>L3 Routing</b>	
<b>IPv4/v6 Static Routing</b>	Supported
<b>RIP v2 Dynamic Routing</b>	Supported
<b>OSPF v2 Dynamic Routing</b>	Supported
<b>Topology</b>	
<b>VLAN</b>	IEEE 802.1q VLAN, up to 4094 802.1Q VLAN VID IEEE 802.1q VLAN, up to 4094 Groups IEEE 802.1ad Q-in-Q MAC-based VLAN, up to 256 entries IP Subnet-based VLAN, up to 128 entries Protocol-based VLAN (Ethernet, SNAP, LLC), up to 128 entries VLAN Translation, up to 256 entries Private VLAN for port isolation GVRP (GARP VLAN Registration Protocol) MVR (Multicast VLAN Registration) Voice VLAN
<b>Link Aggregation (Port Trunk)</b>	Static (IEEE 802.3ad LACP), Maximum trunk group : 16group Dynamic (IEEE 802.3ad LACP), Maximum trunk group : 16group Per group up-to 8 port
<b>IPv4 , IPv6 Dual stack</b>	Supported
<b>Spanning Tree</b>	IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP
<b>Multiple <math>\mu</math>-Ring</b>	Up to 14 instances each support $\mu$ -Ring, $\mu$ -Chain or Sub-Ring for flexible networking applications. Recovery time <20ms The maximum number of device is allowed 250 in a Ring.
<b>Loop Protection</b>	Supported
<b>ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection)</b>	Recovery time <50ms Single Ring, Sub-Ring, Multiple ring topology
<b>ITU-T G.8031 / Y.1342 EPS (Ethernet Protection Switching)</b>	Supported
<b>QoS Features</b>	
<b>Class of Service</b>	IEEE 802.1p 8 active priorities queues per port
<b>Traffic Classification QoS</b>	IEEE 802.1p based CoS IP Precedence based CoS IP DSCP based CoS
<b>Traffic Classification QoS</b>	QCL(QoS Control List): Frame Type, Source/Destination MAC, VLAN ID, PCP, DEI Protocol, Source IP, IP Fragment, DSCP, TCP/UDP port number
<b>Bandwidth Control for Ingress</b>	Per port based
<b>Bandwidth Control for Egress</b>	Per port based Per queue / Per port shaper
<b>DiffServ (RF 2474) Remarking</b>	
<b>Storm Control</b>	for Unicast, Broadcast, Multicast
<b>IP Multicasting Features</b>	
<b>IGMP / MLD Snooping</b>	IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 Port Filtering Profile Throttling, Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port

<b>Security Features</b>	
<b>IEEE 802.1X</b>	Port-Based MAC-Based
<b>ACL</b>	Number of rules : up to 256 entries for L2 / L3 / L4 L2 : Mac address SA/DA/VLAN L3 : IP address SA/DA, Subnet L4 : TCP/UDP
<b>RADIUS authentication &amp; accounting</b>	
<b>TACACS+ authentication &amp; accounting, TACACS+ 3.0</b>	
<b>HTTPS, HTTP</b>	Supported
<b>SSL / SSH v2</b>	Supported
<b>User Name Password Authentication</b>	Local Authentication Remote Authentication (via RADIUS / TACACS+)
<b>Management Interface Access Filtering</b>	Web, Telnet / SSH, CLI console
<b>Management Features</b>	
<b>CLI</b>	Cisco® like CLI
<b>Web Based Management</b>	
<b>Telnet</b>	Server
<b>SNMP</b>	V1, V2c, V3
<b>sFlow</b>	Supported
<b>SW &amp; Configuration Upgrade</b>	TFTP, HTTP Redundant firmware in case of upgrade failure
<b>RMON</b>	RMON I (1, 2, 3, 9 group), RMON II
<b>MIB</b>	RFC1213 MIB II, Private MIB
<b>UPnP</b>	Supported
<b>DHCP</b>	Server, Client, Relay, Snooping
<b>IP Source Guard</b>	Supported
<b>Mirroring</b>	Local and Remote
<b>Event Syslog</b>	Syslog server (RFC3164)
<b>Warning Message</b>	System syslog, e-mail, alarm relay
<b>DNS</b>	Client, Proxy
<b>NTP V4.0, SNTP</b>	Client
<b>LLDP (IEEE 802.1ab)</b>	Link Layer Discovery Protocol LLDP-MED
<b>IPv6 Features</b>	
<b>IPv6 Management</b>	Telnet Server/ICMP v6
<b>SNMP over IPv6</b>	Supported
<b>HTTP over IPv6</b>	Supported
<b>SSH over IPv6</b>	Supported
<b>IPv6 Telnet</b>	Supported
<b>IPv6 NTP, SNTP</b>	Client
<b>IPv6 TFTP</b>	Supported
<b>IPv6 QoS</b>	Supported
<b>IPv6 ACL</b>	Number of rules: up to 256 entries for L2 / L3 / L4 L2 : Mac address SA/DA/VLAN L3 : IP address SIP, Subnet (32bit) L4 : TCP/UDP

## Application

Figure 1 : 10G Backbone application

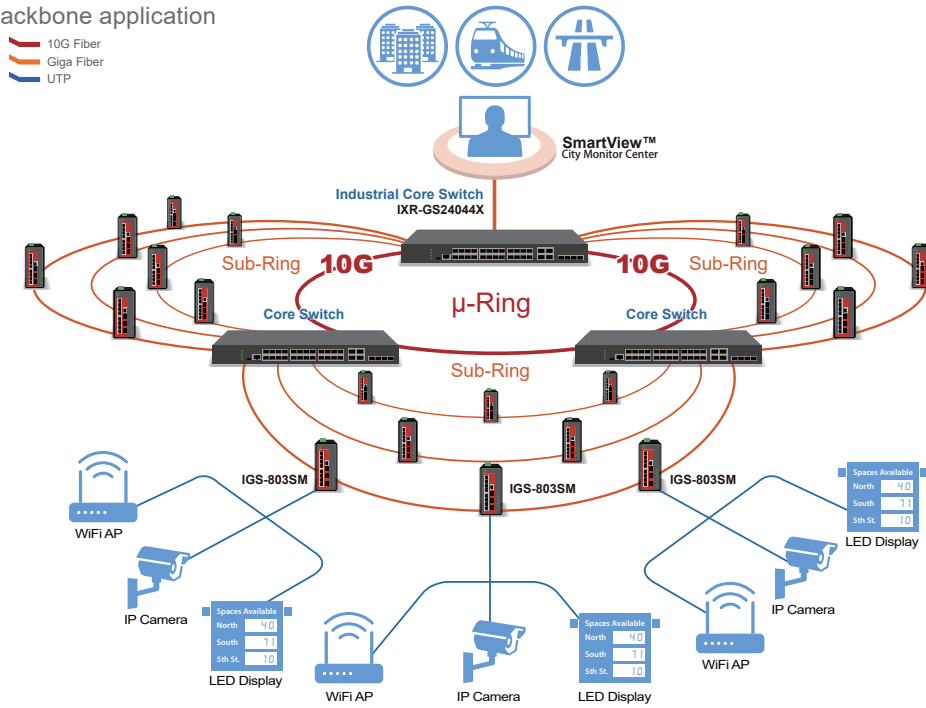
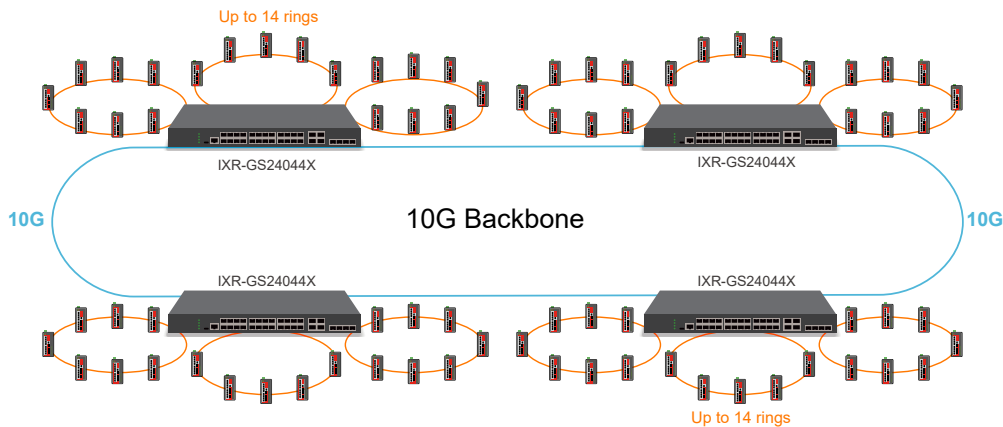


Figure 2 : 10G Backbone with μ-Ring topology



## Ordering Information

Model Name	Managed	Total Ports (Maximum)	GbE		10GbE	Input Power		Certification	
			10/100/1000 Base-T(X) RJ45	100/1000 Base-X SFP	1G/2.5G/10GBase-X SFP	24/48/48VDC	110/220VAC	Safety EN62368-1	CE, FCC
IXR-GS24044X-AA	V	32	4	24	4		2	V	V
IXR-GS24044X-AD	V	32	4	24	4	1	1	V	V
IXR-GS24044X-DD	V	32	4	24	4	2		V	V

### Package List

- IXR-GS24044X device
- Protective caps for SFP ports
- 19" rack-mount kit (brackets and screws)
- AC Power cord (for AC power -A model)

## Optional Accessories

### Industrial SFP Transceiver

The ISFP series of industrial grade SFP modules have been fully tested with all CTC Union industrial grade Ethernet switches for guaranteed compatibility and performance. Best performance can be guaranteed, even in mission-critical applications. (Please see CTC Union's Industrial SFP datasheets for more items and detailed information.)

ISFP-M9000-85-D(E)	Industrial SFP 10GbE 10GBase-SR, M/M, 300 meter (OM3 fiber), wave length 850nm, DDMI, -10~70°C (-40~85°C)
ISFP-S9010-31-D(E)	Industrial SFP 10GbE 10GBase-LR, S/M, 10km, wave length 1310nm, DDMI, -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, DDMI, -10~70°C (-40~85°C)
ISFP-S7020-31-D(E)	Industrial SFP 1000Base-LX, S/M, 20km, wave length 1310nm, 15dB, LC, DDMI, -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, DDMI, -10~70°C (-40~85°C)
ISFP-S5030-31-D(E)	Industrial SFP 155M 100Base-FX, SM, 30km, 1310nm, 19dB, LC, DDMI, -10~70°C (-40~85°C)

### Industrial Power Supply

NDR-120-48	Industrial Power, Input 90 ~ 264VAC/127 ~ 370VDC, Output 48VDC, 120W, -20 ~ +70°C (For DC type)
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