

Industrial L3 20-Port Copper/SFP + 4-Port Gigabit TP/SFP + 4-Port 10G SFP+ Managed Ethernet Switch



10Gbps Fiber Ports and Multiple Dual Speed Ports Deliver High-speed Networking

PLANET IGS-6325 Industrial Layer 3 Managed Rack-mount Switch Series features 24 10/100/1000T or 24 100/1000X Gigabit port, 4 10G SFP+ ports and **Layer 3 IP routing** in a 1U case. With **10Gbps uplink**, the IGS-6325 Rack-mount series can handle extremely large amounts of data in a secure topology linking to an industrial backbone or high capacity servers. The IGS-6325 Rack-mount series is capable of providing non-blocking switch fabric and wire-speed throughput as high as **128Gbps** in the temperature range from **-40 to 75 degrees C**. It greatly simplifies the tasks of upgrading the industrial LAN for catering to increasing bandwidth demands. Furthermore, it adopts user-friendly “**Front Access**” design for easy wiring and maintenance of the IGS-6325 Rack-mount series when placed in the cabinet.



Layer 3 Routing Support

The IGS-6325 Rack-mount series enables the administrator to conveniently boost network efficiency by configuring Layer 3 IPv4/IPv6 VLAN static routing manually, and the IPv4 **OSPFv2** (Open Shortest Path First) settings automatically. The OSPF is an interior dynamic routing protocol for autonomous system based on link state. The protocol creates a database for link state by exchanging link states among Layer 3 switches, and then uses the Shortest Path First algorithm to generate a route table based on that database.

Cybersecurity Network Solution to Minimize Security Risks

The cybersecurity feature included to protect the switch management in a mission-critical network virtually needs no effort and cost to install. For efficient management, the IGS-6325 Rack-mount series is equipped with console, web and SNMP management interfaces. With the built-in web-based management interface, the IGS-6325 Rack-mount series offers an easy-to-use, platform independent management and configuration facility. The IGS-6325 Rack-mount series supports SNMP and it can be managed via any management software based on the standard SNMP protocol. For reducing product learning time, the IGS-6325 Rack-mount series offers Cisco-like command via Telnet or console port and customer

Physical Port

- 20-port 10/100/1000BASE-T RJ45 copper (for IGS-6325-20T4C4X)
- 20 100/1000BASE-X mini-GBIC/SFP slots (for IGS-6325-20S4C4X)
- **4 100/1000BASE-X mini-GBIC/SFP slots**, shared with Port-21 to Port-24 compatible with 100BASE-FX SFP (for IGS-6325-20T4C4X)
- **4 10/100/1000BASE-T RJ45 ports**, shared with Port-1 to Port-4 (for IGS-6325-20S4C4X)
- **4 10GBASE-SR/LR SFP+ slots**, compatible with 1000BASE-SX/LX/BX SFP
- RJ45 to RS232 console interface for basic management and setup

Hardware Conformance

- One 100 to 240V AC or dual 36 to 60V DC power input, redundant power with polarity reverse protect function
 - Active-active redundant power failure protection
 - Backup of catastrophic power failure on one supply
 - Fault tolerance and resilience
- 19-inch rack-mountable design
- IP30 metal case
- Supports EFT 6000V DC protection and 6000V DC Ethernet ESD protection
- -40 to 75 degrees C operating temperature for DC power input
- -10 to 60 degrees C operating temperature for AC power input

Digital Input & Digital Output

- 2 Digital Input (DI)
- 2 Digital Output (DO)
- Integrates sensors into auto alarm system
- Transfers alarm to IP network via email and SNMP trap

Layer 3 IP Routing Features

- Supports maximum 128 static routes and route summarization
- IP dynamic routing protocol supports OSPFv2
- Routing interface provides per VLAN routing mode

Layer 2 Features

- High performance of Store-and-Forward architecture, and runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- Storm control support

doesn't need to learn new command from these switches. Moreover, the IGS-6325 Rack-mount series offers remote secure management by supporting SSH, SSL and SNMP v3 connection which can encrypt the packet content at each session.



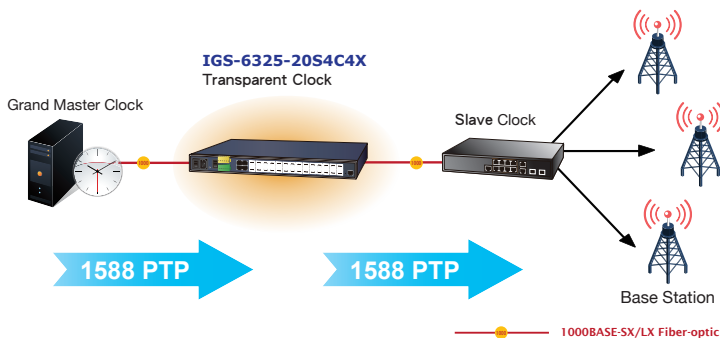
Modbus TCP Provides Flexible Network Connectivity for Factory Automation

With the supported Modbus TCP/IP protocol, the IGS-6325 Rack-mount series can easily integrate with SCADA systems, HMI systems and other data acquisition systems in factory floors. It enables administrators to remotely monitor the industrial Ethernet switch's operating information, port information and communication status, thus easily achieving enhanced monitoring and maintenance of the entire factory.

1588 Time Protocol for Industrial Computing Networks

The IGS-6325 Rack-mount series is ideal for telecom and carrier Ethernet applications, supporting MEF service delivery and timing over packet solutions for IEEE 1588 and synchronous Ethernet.

Time Synchronization in Network



AC and DC Redundant Power to Ensure Continuous Operation

The IGS-6325 Rack-mount series possesses a **100~240V AC** power supply and dual **36~60V DC** power supply utilized as redundant power supply to ensure its continuous operation. Its redundant power system is specifically designed to handle the demands of high-tech facilities requiring the highest power integrity. Furthermore, with the 36~60V DC power supply implemented, the IGS-6325 Rack-mount series can be applied as the **telecom level** device and placed in almost any difficult environment.

Digital Input and Digital Output for External Alarm

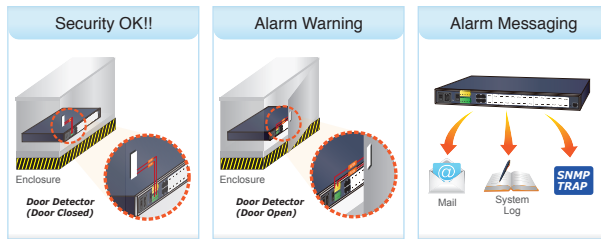
The IGS-6325 Rack-mount series helps the network administrators efficiently manage the unexpected network situations by providing Digital Input and Digital Output for external alarm device on the front panel. The Digital Input can be used to detect and log the status of the external devices such as door intrusion detector. The Digital Output could be used to send alarm whenever the IGS-6325 Rack-mount series has port link-down or power failure.

- Broadcast/Multicast/Unknown unicast
- Supports **VLAN**
 - IEEE 802.1Q tagged VLAN
 - Up to 256 VLANs groups, out of 4096 VLAN IDs
 - Provides Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
 - Private VLAN Edge (PVE)
 - Protocol-based VLAN
 - MAC-based VLAN
 - IP subnet-based VLAN
 - GVRP
- Supports **Spanning Tree Protocol**
 - IEEE 802.1D Spanning Tree Protocol (STP)
 - IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
 - IEEE 802.1s Multiple Spanning Tree Protocol (MSTP), spanning tree by VLAN
 - BPDU Guard
- Supports **Link Aggregation**
 - 802.3ad Link Aggregation Control Protocol (LACP)
 - Cisco ether-channel (static trunk)
 - Maximum 14 trunk groups, with 16 ports for each trunk
 - Up to 32Gbps bandwidth (full duplex mode)
- Provides port mirror (many-to-1)
- Port mirroring monitors the incoming or outgoing traffic on a particular port
- Loop protection to avoid broadcast loops
- Supports ERPS (Ethernet Ring Protection Switching)
- Compatible with Cisco Uni-directional link detection(UDLD) that monitors a link between two switches and blocks the ports on both ends of the link if the link fails at any point between the two devices
- IEEE 1588 and Synchronous Ethernet network timing

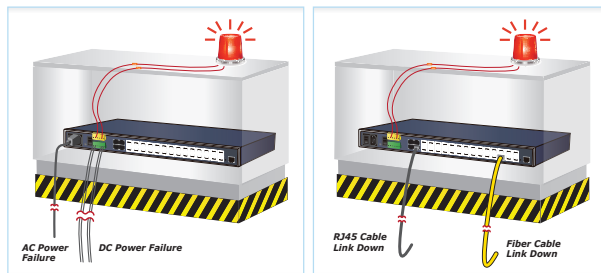
Quality of Service

- Ingress shaper and egress rate limit per port bandwidth control
- 8 priority queues on all switch ports
- Traffic classification
 - IEEE 802.1p CoS
 - ToS/DSCP/IP Precedence of IPv4/IPv6 packets
 - IP TCP/UDP port number
 - Typical network application
- Strict priority and Weighted Round Robin (WRR) CoS policies
- Traffic policing on the switch port
- DSCP remarking
- Voice VLAN

Digital Input



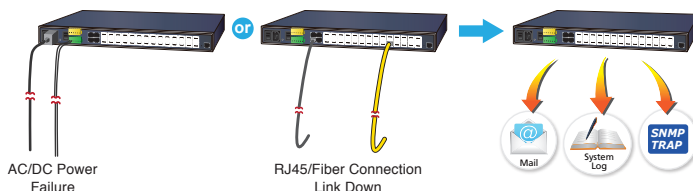
Digital Output



Effective Alarm Alert for Better Protection

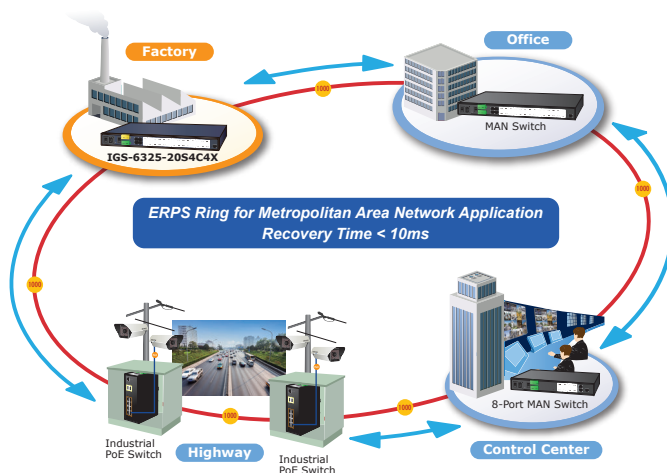
The IGS-6325 Rack-mount series supports a Fault Alarm feature which can alert the users when there is something wrong with the switches. With this ideal feature, the users would not have to waste time to find where the problem is. It will help to save time and human resource.

Fault Alarm Alert



Redundant Ring, Fast Recovery for Critical Network Applications

The IGS-6325 Rack-mount series supports redundant ring technology and features strong, rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates advanced ITU-T **G.8032 ERPS (Ethernet Ring Protection Switching)** technology, Spanning Tree Protocol (802.1s MSTP), and **redundant power** input system into customer's industrial automation network to enhance system reliability and uptime in harsh factory environments. In a simple Ring network, the recovery time of data link can be as fast as 10ms.



Multicast

- Supports IPv4 IGMP snooping v1, v2 and v3
- Supports IPv6 MLD snooping v1 and v2
- Querier mode support
- IGMP snooping port filtering
- MLD snooping port filtering
- MVR (Multicast VLAN Registration)

Security

- Authentication
 - IEEE 802.1x port-based/MAC-based network access authentication
 - IEEE 802.1x authentication with guest VLAN
 - Built-in RADIUS client to cooperate with the RADIUS servers
 - RADIUS/TACACS+ users access authentication
- Access Control List
 - IP-based Access Control List (ACL)
 - MAC-based Access Control List (ACL)
- Source MAC/IP address binding
- DHCP Snooping to filter distrusted DHCP messages
- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- IP Source Guard prevents IP spoofing attacks
- IP address access management to prevent unauthorized intruder

Management

- IPv4 and IPv6 dual stack management
- Switch Management Interfaces
 - Console/Telnet command line interface
 - Web switch management
 - SNMP v1, v2c, and v3 switch management
 - SSH/SSL secure access
- **IPv6** address/NTP management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- System Maintenance
 - Firmware upload/download via HTTP/TFTP
 - Reset button for system reboot or reset to factory default
 - Dual images
- DHCP relay and option 82
- DHCP Server
- User privilege levels control
- NTP (Network Time Protocol)

IPv6/IPv4 Dual Stack

Supporting both IPv6 and IPv4 protocols, the IGS-6325 Rack-mount series helps data centers, campuses, telecoms, and more to experience the IPv6 era with the lowest investment as its network facilities need not be replaced or overhauled if the IPv6 FTTX edge network is set up.

Robust Layer 2 Features

The IGS-6325 Rack-mount series can be programmed for advanced switch management functions such as dynamic port link aggregation, Q-in-Q VLAN, private VLAN, Multiple Spanning Tree Protocol (MSTP), Layer 2 to Layer 4 QoS, bandwidth control and IGMP/MLD Snooping. Via the link aggregation of supporting ports, the IGS-6325 Rack-mount series allows the operation of a high-speed trunk to combine with multiple fiber ports and supports fail-over as well.



- Link Layer Discovery Protocol (LLDP) and LLDP-MED
- Network diagnostic
 - SFP-DDM (Digital Diagnostic Monitor)
 - Cable diagnostic technology provides the mechanism to detect and report potential cabling issues
 - ICMPv6/ICMPv4 remote ping
- SMTP/Syslog remote alarm
- Four RMON groups (history, statistics, alarms and events)
- SNMP trap for interface link up and link down notification
- System Log
- PLANET Smart Discovery Utility for deployment management

Powerful Security

The IGS-6325 Rack-mount series offers a comprehensive **Layer 2 to Layer 4 Access Control List (ACL)** for enforcing security to the edge. It can be used to restrict network access by denying packets based on source and destination IP address, TCP/UDP ports or defined typical network applications. Its protection mechanism also comprises **802.1X Port-based** and **MAC-based** user, and device authentication. With the **private VLAN** function, communication between edge ports can be prevented to ensure user privacy. The IGS-6325 Rack-mount series also provides **DHCP Snooping**, **IP Source Guard** and **Dynamic ARP Inspection** functions to prevent IP snooping from attack and discard ARP packets with invalid MAC address. The network administrators can now construct highly-secure corporate networks with considerably less time and effort than before.

Excellent Traffic Control

The IGS-6325 Rack-mount series is loaded with powerful traffic management and QoS features to enhance connection services by telecoms and ISPs. The QoS features include wire-speed Layer 4 traffic classifiers and bandwidth limit that are particularly useful for multi-tenant units, multi-business units, Telco and network service providers' applications. It also empowers the industrial environment to take full advantage of the limited network resources and guarantees the best performance in VoIP and video conferencing transmission.

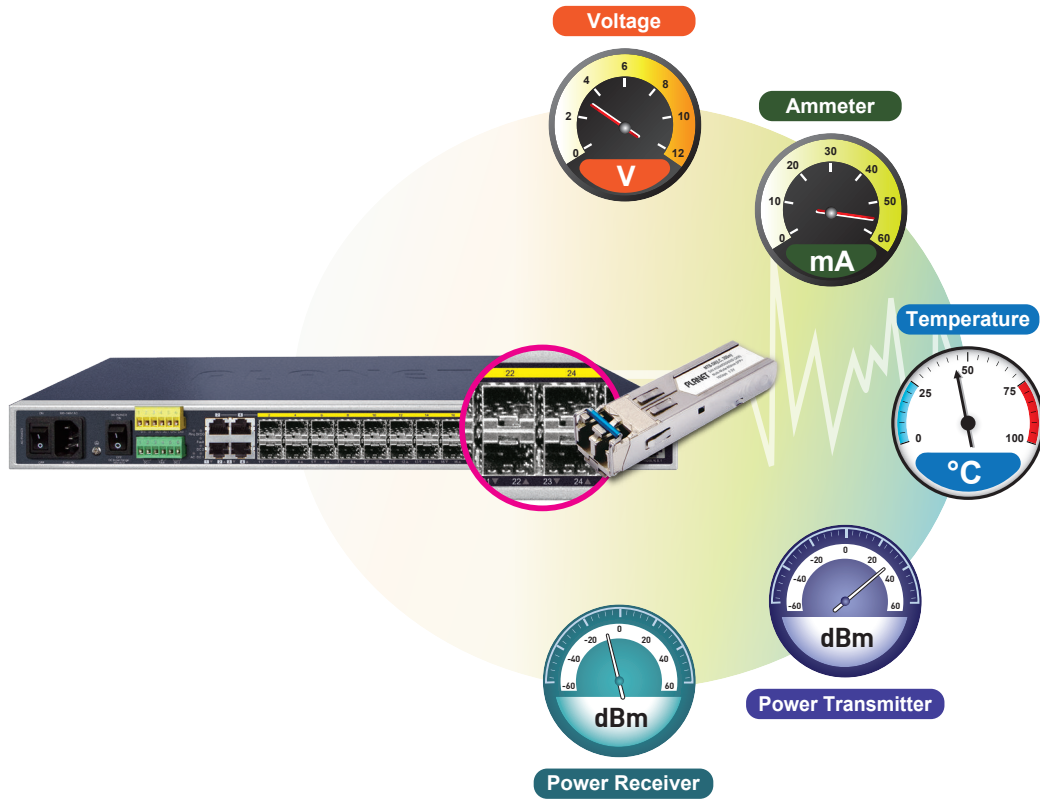
Flexible and Extendable 10Gb Ethernet Solution

10G Ethernet is a big leap in the evolution of Ethernet. Each of the 10G SFP+ slots in the IGS-6325 Rack-mount series supports **dual speed** and **10GBASE-SR/LR or 1000BASE-SX/LX**. With its 4-port, 10G Ethernet link capability and additional 4-port 1G Ethernet link capability, the administrator now can flexibly choose the suitable SFP/SFP+ transceiver according to the transmission distance or the transmission speed required to extend the network efficiently. The IGS-6325 Rack-mount series provides broad bandwidth and powerful processing capacity.

Intelligent SFP Diagnosis Mechanism

The IGS-6325 Rack-mount series supports SFP-DDM (Digital Diagnostic Monitor) function that greatly helps network administrator to easily monitor real-time parameters of the SFP, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

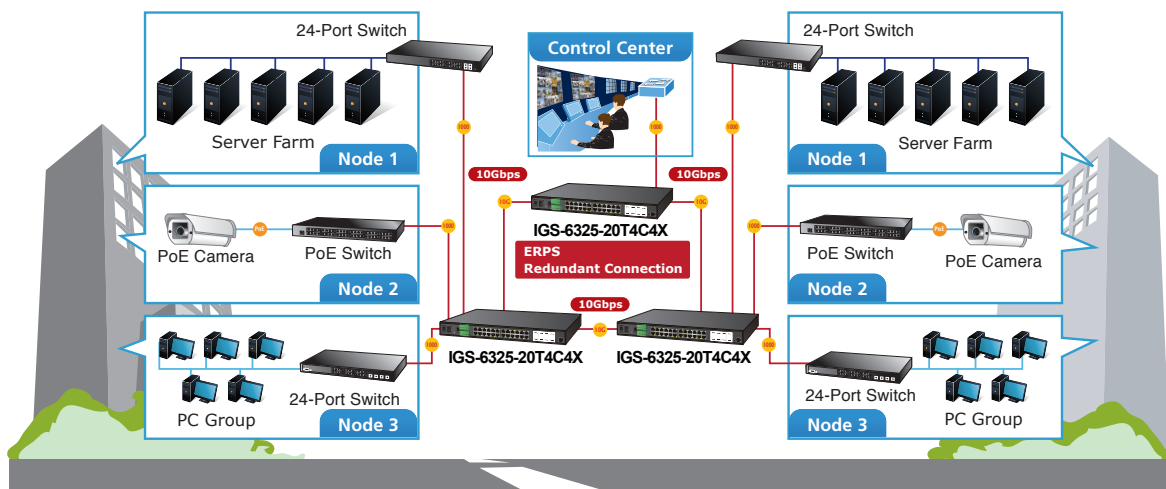
Digital Diagnostic Monitor (DDM)



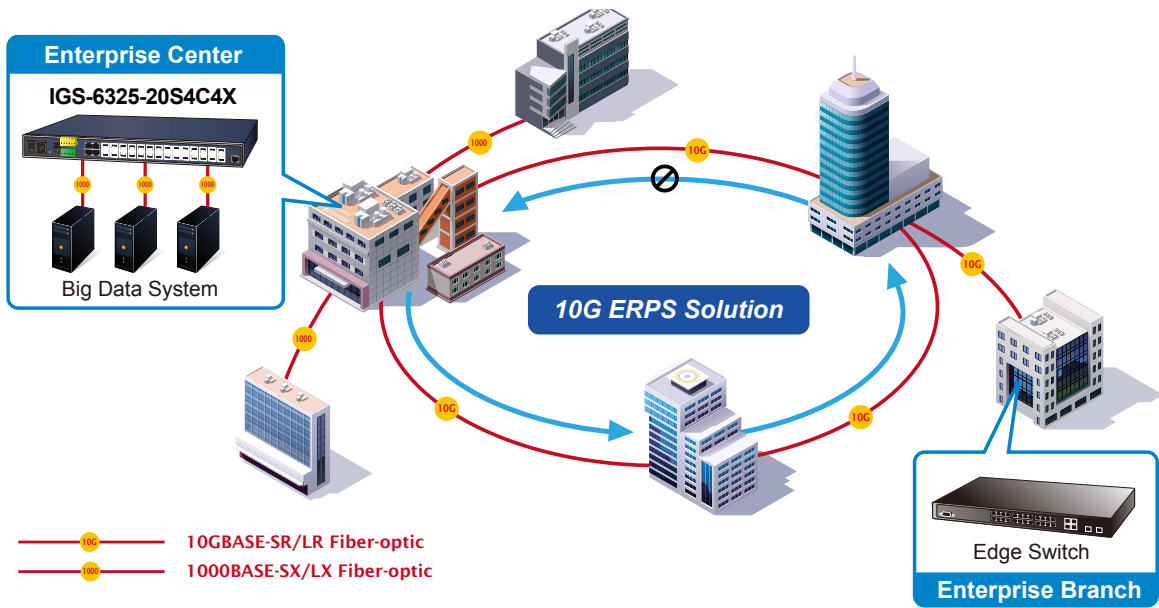
Applications

High Availability Mesh Networking Solution for Big Data System

To improve the technology of Optical Fiber Ethernet with highly-flexible, highly-extendable and easy-to-install features, the IGS-6325 Rack-mount series offers up to **128Gbps** data exchange speed via Optical Fiber interface and the transmission distance can be extended to 10km. The IGS-6325 Rack-mount series features strong, rapid, self-recovery capability to prevent interruptions and external intrusions. It incorporates **ITU-T G.8032 ERPS (Ethernet Ring Protection Switching)** into customer's automation network to enhance system reliability and uptime. The IGS-6325 Rack-mount series is the ideal solution for data centers, service providers and telecoms to build redundant connection and establish high bandwidth for **Big Data** server farm.



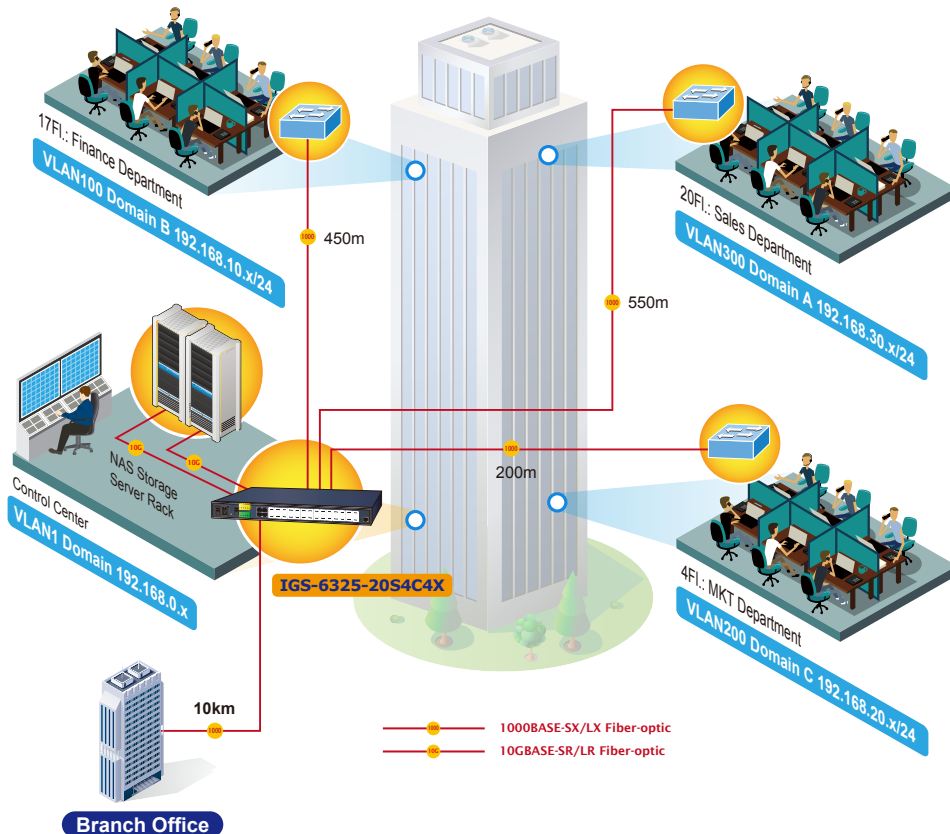
- 100BASE-TX UTP
- 100BASE-TX UTP with PoE
- 1000BASE-T UTP
- 1000BASE-SX/LX Fiber-optic
- 10GBASE-SR/LR Fiber-optic



Layer 3 VLAN Routing and 10G Uplink Application

With the built-in, robust Layer 3 routing protocols, the IGS-6325 Rack-mount series ensures reliable routing between VLANs and network segments. The routing protocols can be applied by VLAN interface with up to 128 routing entries. The IGS-6325 Rack-mount series, certainly an ideal solution for industries, offers greater security, control and bandwidth conservation, and high-speed uplink.

VLAN Routing + 10G Uplink Applications



Specifications

Product	IGS-6325-20T4C4X	IGS-6325-20S4C4X
Hardware Specifications		
Copper Ports	24 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports	4 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports, shared with Port-1 to Port-4
SFP/mini-GBIC Slots	4 100/1000BASE-X SFP interfaces, shared with Port-21 to Port-24 Compatible with 100BASE-FX SFP transceiver	24 100/1000BASE-X SFP interfaces, Compatible with 100BASE-FX SFP transceiver
SFP+ Slots	4 10GbBASE-SR/LR SFP+ interfaces (Port-25 to Port-28) Compatible with 1000BASE-SX/LX/BX SFP transceiver	24 100/1000BASE-X SFP interfaces, Compatible with 100BASE-FX SFP transceiver
Console	1 x RS232-to-RJ45 serial port (115200, 8, N, 1)	
Switch Architecture	Store-and-Forward	
Switch Fabric	128Gbps/non-blocking	
Throughput	95.2Mpps@64Bytes	
Address Table	16K entries, automatic source address learning and aging	
Shared Data Buffer	32M bits	
Flow Control	IEEE 802.3x pause frame for full duplex Back pressure for half duplex	
Jumbo Frame	10K bytes	
Reset Button	< 5 sec: System reboot > 5 sec: Factory default	
Dimensions (W x D x H)	440 x 200 x 44.5 mm, 1U height	
Weight	2980g	2.935kg
LED Indicators	System: AC (Green), DC1 (Green), DC2 (Green), Fault (Red) Ring (Green), R.O. (Green), DI/DO (Red) 10/100/1000T RJ45 Interfaces (Port 1 to Port 24): 1000Mbps LNK/ACT (Green) 10/100Mbps LNK/ACT (Amber) 100/1000Mbps SFP Combo Interfaces (Port 21 to Port 24): 1000Mbps LNK/ACT (Green) 100Mbps LNK/ACT (Amber) 1/10Gbps SFP+ Interfaces (Port 25 to Port 28): 10Gbps LNK/ACT (Green) 1Gbps LNK/ACT (Amber)	System: AC (Green), DC1 (Green), DC2 (Green), Fault (Red) Ring (Green), DI/DO. (Green) 10/100/1000T RJ45 Interfaces (Port 1 to Port 4): 1000Mbps LNK/ACT (Green) 10/100Mbps LNK/ACT (Amber) 100/1000Mbps SFP Combo Interfaces (Port 21 to Port 24): 1000Mbps LNK/ACT (Green) 100Mbps LNK/ACT (Amber) 1/10Gbps SFP+ Interfaces (Port 25 to Port 28): 10Gbps LNK/ACT (Amber) 1Gbps LNK/ACT (Green)
Power Consumption	Max. 36 watts/122.8 BTU	AC input: Max. 38.3 watts/131.4 BTU DC input: Max. 41.4 watts/142 BTU
Power Requirements – AC	AC 100~240V, 50/60Hz 1A	
Power Requirements – DC	DC 36~60V, 1.5A	
DI and DO	2 digital input (DI): Level 0: -24~2.1V Level 1: 2.1~24V Max. input current: 10mA 2 digital output (DO): Open collector to 24VDC, 100mA	
EFT Protection	6KV DC	
ESD Protection	6KV DC	
Layer 2 Management Functions		
Port Configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow control disable/enable	
Port Status	Display each port's speed duplex mode, link status, flow control status, auto-negotiation status, trunk status	
Port Mirroring	TX/RX/Both Many-to-1 monitor	
VLAN	802.1Q tagged VLAN Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-based VLAN Voice VLAN IP Subnet-based VLAN	

VLAN	MVR (Multicast VLAN registration) Up to 256 VLAN groups, out of 4096 VLAN IDs GVRP
Link Aggregation	IEEE 802.3ad LACP/static trunk 14 trunk groups with 16 port per trunk group
Spanning Tree Protocol	IEEE 802.1D Spanning Tree Protocol IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.1s Multiple Spanning Tree Protocol
QoS	Traffic classification based, strict priority and WRR 8-level priority for switching: - Port number - 802.1p priority - 802.1Q VLAN tag - DSCP/ToS field in IP packet
IGMP Snooping	IGMP (v1/v2/v3) snooping, up to 255 multicast groups IGMP querier mode support
MLD Snooping	MLD (v1/v2) snooping, up to 255 multicast groups MLD querier mode support
Access Control List	IP-based ACL/MAC-based ACL Up to 256 entries
Bandwidth Control	Per port bandwidth control Ingress: 100Kbps~1000Mbps Egress: 100Kbps~1000Mbps
Layer 3 Functions	
IP Interfaces	Max. 128 VLAN interfaces
Routing Table	Max. 128 routing entries
Routing Protocols	IPv4 hardware static routing IPv6 hardware static routing OSPFv2 dynamic routing
Management	
Basic Management Interfaces	Console; Telnet; Web browser; SNMP v1, v2c
Secure Management Interfaces	SSH, SSL, SNMPv3
SNMP MIBs	RFC 1213 MIB-II RFC 1493 Bridge MIB RFC 1643 Ethernet MIB RFC 2863 Interface MIB RFC 2665 Ether-Like MIB RFC 2819 RMON MIB (Group 1, 2, 3 and 9) RFC 2737 Entity MIB RFC 2618 RADIUS Client MIB RFC 2863 IF-MIB RFC 2933 IGMP-STD-MIB RFC 3411 SNMP-Frameworks-MIB RFC 4292 IP Forward MIB RFC 4293 IP MIB RFC 4836 MAU-MIB IEEE 802.1X PAE LLDP
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3z Gigabit SX/LX IEEE 802.3ab Gigabit 1000T IEEE 802.3ae 10Gb/s Ethernet IEEE 802.3x flow control and back pressure IEEE 802.3ad port trunk with LACP IEEE 802.1D Spanning Tree Protocol IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.1s Multiple Spanning Tree Protocol IEEE 802.1p Class of Service IEEE 802.1Q VLAN tagging IEEE 802.1X Port Authentication Network Control IEEE 802.1ab LLDP RFC 768 UDP RFC 793 TFTP

Standards Compliance	RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP v1 RFC 2236 IGMP v2 RFC 2328 OSPF v2 RFC 3376 IGMP v3 RFC 2710 MLD v1 RFC 3810 MLD v2 ITU G.8032 Ethernet Ring Protection Switching
Environment	
Operating	Temperature: -10 ~ 60 degrees C for AC power input -40 ~ 75 degrees C for DC power input Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -40 ~ 80 degrees C Relative Humidity: 5 ~ 95% (non-condensing)

Ordering Information

IGS-6325-20T4C4X	Art. N° 158644	Industrial L3 20-Port 10/100/1000T + 4-Port Gigabit TP/SFP + 4-Port 10G SFP+ Managed Ethernet Switch
IGS-6325-20S4C4X	Art. N° 160402	Industrial L3 20-Port 100/1000X SFP + 4-Port Gigabit TP/SFP + 4-Port 10G SFP+ Managed Ethernet Switch

Related Products

IGS-5225-20T4C2X	Industrial L2+ 20-Port 10/100/1000T + 4-Port TP/SFP Combo + 2-Port 10G SFP+ Managed Ethernet Switch (-40~75 degrees C)
IGS-5225-8P2S2X	Industrial L2+ 8-Port 10/100/1000T 802.3at PoE + 2-Port 100/1000X SFP + 2-Port 10G SFP+ Managed Ethernet Switch (-40~75 degrees C)
MGSW-28240F	24-Port 100/1000BASE-X SFP with 4-Port 10G SFP+ L2/L4 Managed Metro Ethernet Switch
CB-DASFP-0.5/2M	10G SFP+ Directly-attached Copper Cable (0.5/2M in length)
MTB-Series Module	10GBASE-LR/SR/BX/T Modules
MGB-Series Transceiver	1000BASE-SX/LX SFP Transceiver
MFB-Series Transceiver	100BASE-FX SFP Transceiver
MFB-Series Transceiver	100BASE-FX SFP Transceiver

Available Modules for IGS-6325 Rack-mount series

10Gigabit Ethernet Transceiver (10GBASE-X SFP+)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MTB-SR	10G	LC	Multi Mode	300m	850nm	0 ~ 60 degrees C
MTB-LR	10G	LC	Single Mode	10km	1310nm	0 ~ 60 degrees C
MTB-TSR	10G	LC	Multi Mode	300m	850nm	-40 ~ 75 degrees C
MTB-TLR	10G	LC	Single Mode	10km	1310nm	-40 ~ 75 degrees C
MTB-RJ	10G	RJ45	--	30km	--	0 ~ 60 degrees C

10Gigabit Ethernet Transceiver (10GBASE-BX, Single Fiber Bi-directional SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MTB-LA20	10G	WDM(LC)	Single Mode	20km	1270nm	1330nm	0 ~ 60 degrees C
MTB-LB20	10G	WDM(LC)	Single Mode	20km	1330nm	1270nm	0 ~ 60 degrees C
MTB-LA40	10G	WDM(LC)	Single Mode	40km	1270nm	1330nm	0 ~ 60 degrees C
MTB-LB40	10G	WDM(LC)	Single Mode	40km	1330nm	1270nm	0 ~ 60 degrees C
MTB-LA60	10G	WDM(LC)	Single Mode	60km	1270nm	1330nm	0 ~ 60 degrees C
MTB-LB60	10G	WDM(LC)	Single Mode	60km	1330nm	1270nm	0 ~ 60 degrees C

Gigabit Ethernet Transceiver (1000BASE-X SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MGB-GT	1000	Copper	--	100m	--	0 ~ 60 degrees C
MGB-SX	1000	LC	Multi Mode	550m	850nm	0 ~ 60 degrees C
MGB-SX2	1000	LC	Multi Mode	2km	1310nm	0 ~ 60 degrees C
MGB-LX	1000	LC	Single Mode	10km	1310nm	0 ~ 60 degrees C
MGB-L30	1000	LC	Single Mode	30km	1310nm	0 ~ 60 degrees C
MGB-L50	1000	LC	Single Mode	50km	1550nm	0 ~ 60 degrees C
MGB-L70	1000	LC	Single Mode	70km	1550nm	0 ~ 60 degrees C
MGB-L120	1000	LC	Single Mode	120km	1550nm	0 ~ 60 degrees C
MGB-TSX	1000	LC	Multi Mode	550m	850nm	-40 ~ 75 degrees C
MGB-TLX	1000	LC	Single Mode	10km	1310nm	-40 ~ 75 degrees C
MGB-TL30	1000	LC	Single Mode	30km	1310nm	-40 ~ 75 degrees C
MGB-TL70	1000	LC	Single Mode	70km	1550nm	-40 ~ 75 degrees C

Gigabit Ethernet Transceiver (1000BASE-BX, Single Fiber Bi-directional SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MGB-LA10 MGB-LB10	1000	WDM(LC)	Single Mode	10km	1310nm 1550nm	1550nm 1310nm	0 ~ 60 degrees C
MGB-LA20 MGB-LB20	1000	WDM(LC)	Single Mode	20km	1310nm 1550nm	1550nm 1310nm	0 ~ 60 degrees C
MGB-LA40 MGB-LB40	1000	WDM(LC)	Single Mode	40km	1310nm 1550nm	1550nm 1310nm	0 ~ 60 degrees C
MGB-LA60 MGB-LB60	1000	WDM(LC)	Single Mode	60km	1310nm 1550nm	1550nm 1310nm	0 ~ 60 degrees C
MGB-TLA10 MGB-TLB10	1000	WDM(LC)	Single Mode	10km	1310nm 1550nm	1550nm 1310nm	-40 ~ 75 degrees C
MGB-TLA20 MGB-TLB20	1000	WDM(LC)	Single Mode	20km	1310nm 1550nm	1550nm 1310nm	-40 ~ 75 degrees C
MGB-TLA40 MGB-TLB40	1000	WDM(LC)	Single Mode	40km	1310nm 1550nm	1550nm 1310nm	-40 ~ 75 degrees C
MGB-TLA60 MGB-TLB60	1000	WDM(LC)	Single Mode	60km	1310nm 1550nm	1550nm 1310nm	-40 ~ 75 degrees C

Fast Ethernet Transceiver (100BASE-X SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MFB-FX	100	LC	Multi Mode	2km	1310nm	0 ~ 60 degrees C
MFB-F20	100	LC	Single Mode	20km	1310nm	0 ~ 60 degrees C
MFB-F40	100	LC	Single Mode	40km	1310nm	0 ~ 60 degrees C
MFB-F60	100	LC	Single Mode	60km	1310nm	0 ~ 60 degrees C
MFB-F120	100	LC	Single Mode	120km	1310nm	0 ~ 60 degrees C
MFB-TFX	100	LC	Multi Mode	2km	1310nm	-40 ~ 75 degrees C
MFB-TF20	100	LC	Single Mode	20km	1310nm	-40 ~ 75 degrees C

Gigabit Ethernet Transceiver (1000BASE-BX, Single Fiber Bi-directional SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MFB-FA20	100	WDM(LC)	Single Mode	20km	1310nm	1550nm	0 ~ 60 degrees C
MFB-FB20	100	WDM(LC)	Single Mode	20km	1550nm	1310nm	0 ~ 60 degrees C
MFB-TFA20	100	WDM(LC)	Single Mode	20km	1310nm	1550nm	-40 ~ 75 degrees C
MFB-TFB20	100	WDM(LC)	Single Mode	20km	1550nm	1310nm	-40 ~ 75 degrees C
MFB-TFA40	100	WDM(LC)	Single Mode	40km	1310nm	1550nm	-40 ~ 75 degrees C
MFB-TFB40	100	WDM(LC)	Single Mode	40km	1550nm	1310nm	-40 ~ 75 degrees C