![PLANET Networking & Communication logo]

L2+ 20-Port 10/100/1000T + 4-Port Gigabit TP/SFP Combo Managed Switch

Physical Port

- **24-port 10/100/1000BASE-T** RJ45 copper
- **4 100/1000BASE-X mini-GBIC/SFP** slots , shared with port-21 to port-24
- RS-232 DB9 console interface for basic management and setup

Layer 2 Features

- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- High performance of Store-and-Forward architecture and runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- Storm control support
  - Broadcast / Multicast / Unicast / Unknown-unicast
- Supports **VLAN**
  - IEEE 802.1Q tagged VLAN
  - Up to 255 VLANs groups, out of 4095 VLAN IDs
  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
  - Private VLAN Edge (PVE)
  - Protocol-based VLAN
  - MAC-based VLAN
  - IP Subnet-based VLAN
  - Voice VLAN
  - Management VLAN
- Supports **Spanning Tree Protocol**
  - STP, IEEE 802.1D Spanning Tree Protocol
  - RSTP, IEEE 802.1w Rapid Spanning Tree Protocol
  - MSTP, IEEE 802.1s Multiple Spanning Tree Protocol (by VLAN)
  - STP BPDU Guard and BPDU filtering
- Supports **Link Aggregation**
  - IEEE 802.3ad Link Aggregation Control Protocol (LACP)
  - Cisco ether-channel (Static Trunk)
  - Maximum 12 trunk groups, up to 8 ports per trunk group
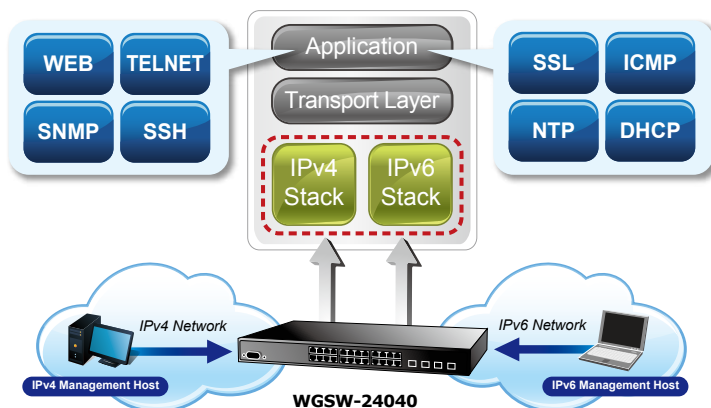 - Up to 16Gbps bandwidth (full duplex mode)

Cost-effective IPv6 Managed Gigabit Switch Solution for Enterprises

PLANET WGSW-24040 series is a Layer 2+ managed Gigabit Switch that features 24-Port 10/100/1000BASE-T + 4-Port Shared 100/1000BASE-X SFP and supports static Layer 3 routing for enterprise-level network. The abundant L2 / L4 switching engine offered by the WGSW-24040 series performs effective data traffic control for enterprises and VoIP service providers, video streaming, and multicast applications. Providing user-friendly but advanced IPv6 / IPv4 management interfaces, it is well suited for backbone and workgroup network applications by providing affordability, high performance, and stable transmission quality.

Solution for IPv6 Networking

By supporting IPv6 / IPv4 dual stack and plenty of management functions with easy and friendly management interfaces, the WGSW-24040 series is the best choice for video, voice and wireless service providers to connect with the IPv6 network. It also helps SMBs to step in the IPv6 era with the lowest investment but is not necessary to replace the network facilities while the ISP constructs the IPv6 FTTx edge network.

Layer 3 IPv4 and IPv6 Software VLAN Routing for Secure and Flexible Management

To help customers stay on top of their businesses, the WGSW-24040 series not only provides ultra high transmission performance and excellent layer 2 technologies, but also **IPv4/IPv6 software VLAN routing** feature which allows to cross over different VLANs and different IP addresses for the purpose of having a highly secured, flexible management and simpler networking application.

Robust Layer2 Features

The WGSW-24040 series can be programmed for advanced switch management function, such as dynamic port link aggregation, **Q-in-Q VLAN, Multiple Spanning Tree Protocol (MSTP)**, Layer 2/4 QoS, bandwidth control and **IGMP/MLD** snooping. Via the link aggregation of supporting ports, the WGSW-24040 series allows the operation of a high-speed trunk to combine with multiple ports. It enables a maximum of 12 trunk groups with 8 ports per group, and supports connection fail-over as well.

L2/L4
Managed Switch

L2/L4
Managed Switch
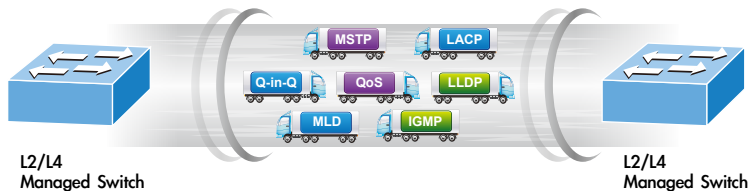
Powerful Security

The WGSW-24040 series offers comprehensive **layer2 to layer4 access control list (ACL)** for enforcing security to the edge. It can be used to restrict to network access by denying packets based on source and destination IP address, TCP/UDP port number or defined typical network applications. Its protection mechanism also comprises **802.1x port-based** and **MAC-based** user and device authentication.

Enhanced Security and Traffic Control

The WGSW-24040 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 administrator can now construct highly-secured corporate networks with considerably less time and effort than before.

User-friendly Secure Management

For efficient management, the WGSW-24040 managed switch series is equipped with console, web and SNMP management interfaces. With the built-in web-based management interface, the WGSW-24040 series offers an easy-to-use, platform independent management and configuration facility. For reducing product learning time, the WGSW-24040 series offers Cisco-like command via Telnet or console port and customer doesn't need to learn new command from these switches. The WGSW-24040 series supports SNMP and it can be managed via any management software based on standard of SNMP v1 and v2 protocol. Moreover, the WGSW-24040 series offers remote secure management by supporting **SSH**, **SSL** and **SNMPv3** connection which can encrypt the packet content at each session.

- Provides port mirror (many-to-1)
- Port mirroring to monitor the incoming or outgoing traffic on a particular port
- Loop protection to avoid broadcast loops

Layer 3 IP Routing Features

- Supports maximum 32 software static routes and route summarization

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 policies on the switch port
- DSCP remarking

Multicast

- Supports IGMP snooping v1, v2 and v3 for IPv4 multicasting network
- Supports MLD snooping v1 and v2 for IPv6 multicasting network
- 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
  - Built-in RADIUS client to co-operate with the RADIUS servers
  - TACACS+ login users access authentication
  - RADIUS / TACACS+ users access authentication

Flexible and Extendable Solution

The four mini-GBIC SFP slots built in the WGSW-24040 series support dual speed as it features 100BASE-FX and 1000BASE-SX/LX SFP (Small Form-factor Pluggable) fiber-optic modules, meaning the administrator can flexibly choose the suitable SFP transceiver according to not only the transmission distance, but also the transmission speed required. The distance can be extended from 550 meters to 2km (multi-mode fiber) and up to above 10/20/30/40/50/70/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

Intelligent SFP Diagnosis Mechanism

The WGSW-24040 series supports **SFP-DDM (Digital Diagnostic Monitor)** function that greatly helps network administrator to easily monitor real-time parameters of the SFP transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

Redundant AC / DC Power Supply to Ensure Continuous Operation

The WGSW-24040R is particularly equipped with one 100~240V AC power supply unit and one 36~60V DC power supply unit to provide an enhanced reliable and scalable redundant power supply installation. The continuous power system is specifically designed to fulfill the demands of high tech facilities requiring the highest power integrity. With the 36~60V DC power supply, the WGSW-24040R is able to act as a telecom level device that can be located in the electronic room

DC Power   AC Power

- Access Control List
  - IPv4 / IPv6 IP-based ACL
  - MAC-based ACL
- Source MAC / IP address binding
- Port Security for Source MAC address entries filtering
- 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
- Auto DoS rule to defend DoS attack
- 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
- User Privilege levels control
- System Maintenance
  - Firmware upload/download via HTTP / TFTP
  - Configuration upload / download through web interface
  - Dual Images
  - Reset button for system reboot or reset to factory default
  - Built-in Trivial File Transfer Protocol (TFTP) client
- Four RMON groups (history, statistics, alarms, and events)
- IPv6 IP Address / NTP / DNS management and ICMPv6
- BOOTP and DHCP for IP address assignment
- DHCP Relay and DHCP Option82
- NTP (Network Time Protocol)
- Link Layer Discovery Protocol (LLDP) Protocol and LLDP-MED
- Cable diagnostic technology provides the mechanism to detect and report potential cabling issues
- PLANET smart discovery utility for deploy management

Applications

High Performance Backbone / Server Farm Switch

Gigabit Ethernet supported equipment has become the fundamental unit of enterprises and network servers. With up to 48 Gigabits per second of non-blocking switch fabric, the WGSW-24040 series can easily provide the high bandwidth required from now on. It can easily provide a local high bandwidth Gigabit Ethernet network for backbone of enterprises or telecoms. With its port trunking function, a 16 GB fat pipe is provided to connect to the backbone if required. It is ideal to be used as a server farm switch connecting to servers. The WGSW-24040 series can offer the uplink to the edge network through Gigabit Ethernet LX / SX SFP modules with the four SFP ports.
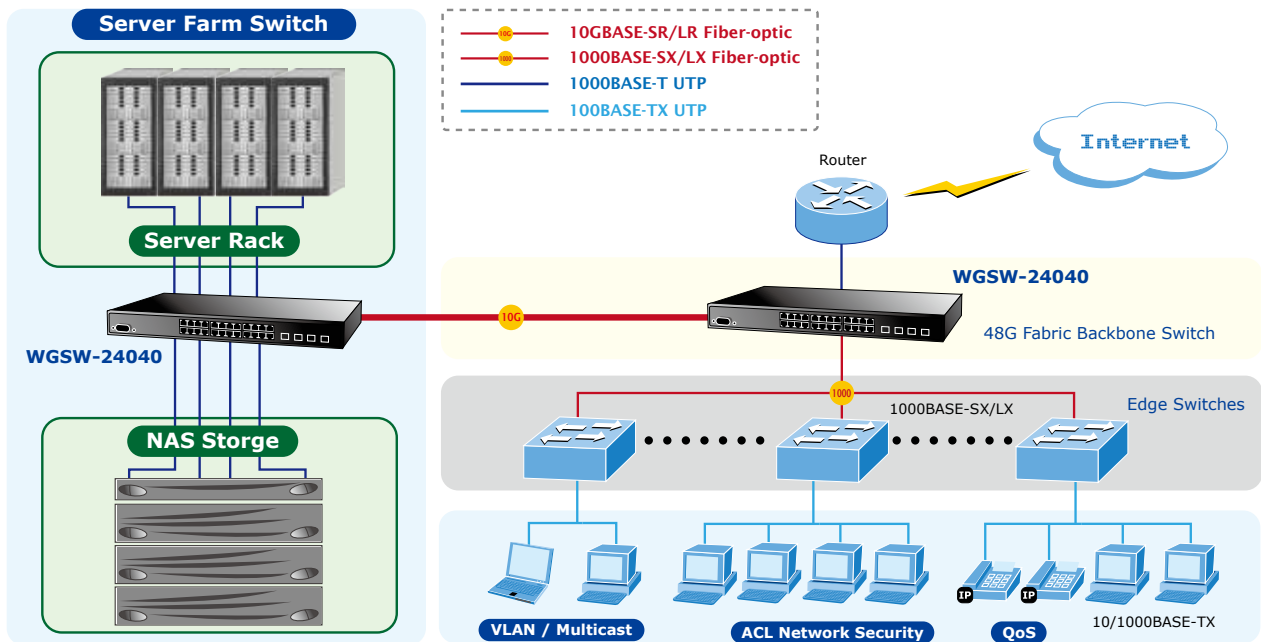

Department / Edge Security and QoS Switch

The WGSW-24040 series connects up to 24 high-speed workstations in the Ethernet environment, in which its two SFP mini-GBIC interfaces are uplinked to a department backbone. Moreover, the Switch provides 16 Gigabit per second switch fabric and high bandwidth for backbone connection. The WGSW-24040 series improves the network efficiency and safeguards the network clients with the powerful features:
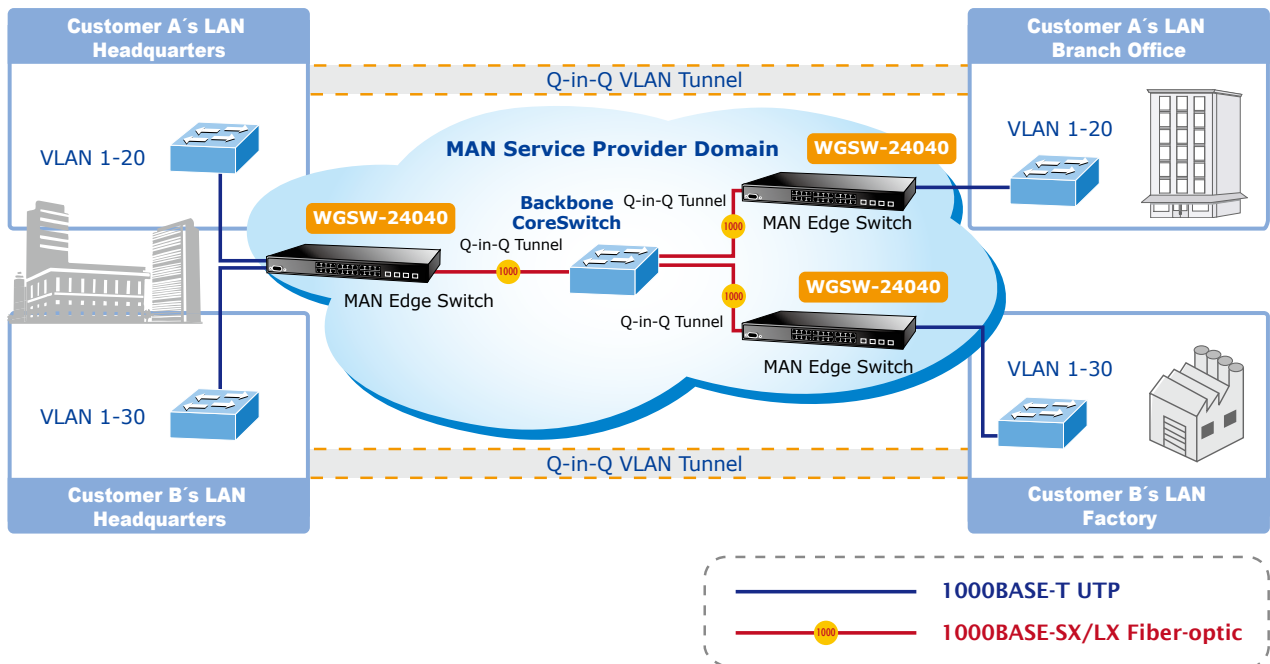
- IPv6 / IPv4 management
- Layer 2 to Layer 4 security
- QoS
- 802.1x Port-based and MAC-based network access authentication security
- Multicast IGMP snooping

The advanced functionality of the WGSW-24040 series eliminates the traditional issues associated with the use of Ethernet. Users can be separated with advanced VLAN functionality to enhance security. It makes the WGSW-24040 series one of the best and most cost-effective switch solutions for SMBs.
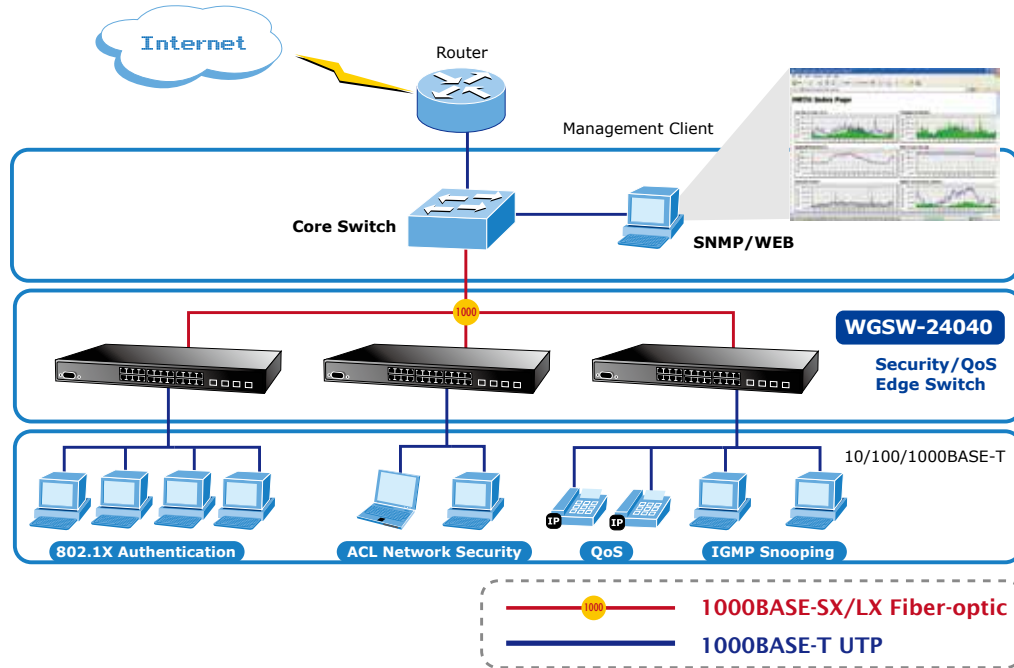
FTTX / MAN Application

The WGSW-24040 series applies the **double tag VLAN (Q-in-Q)** to providing low cost and easy operation for service providers carrying traffic for multiple customers across their networks. For security and various applications, the 24 Gigabit ports of the WGSW-24040 series can be configured with VLAN settings and connect to different units, offices, flowers, houses and departments. It features **SNMPv3** and RMON Groups. The SNMPv3 security structure consists of security models, with each model having its own security levels. To build a network solution of FTTH (Fiber to the Home) or FTTC (Fiber to the Curb) for ISPs, and FTTB (Fiber to the Building) for enterprises, the various distances of SFP and Bidi (WDM) transceivers are optional for customers.

Specifications

Product	WGSD-24040 / WGSW-24040R
Hardware Specifications	
Hardware Version	Version 2
Copper Ports	24 10/100/1000BASE-T RJ45 Auto-MDI/MDI-X ports
10/100/1000Mbps / SFP Combo Interfaces	4 1000BASE-SX/LX/BX SFP interfaces, shared with port-21 to port-24 Supports 100/1000Mbps dual mode and DDM
Console Port	1 x RS-232 DB9 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-Forward
Switch Fabric	48Gbps / non-blocking
Switch Throughput	35.7Mpps@64Bytes
Address Table	8K entries, automatic source address learning and ageing
Shared Data Buffer	1392 kilobytes
ESD Protection	6KV
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	9Kbytes
Reset Button	< 5 seconds: System reboot > 5 seconds: Factory default
Dimensions (W x D x H)	440 x 200 x 44.5mm, 1U high
Weight	WGSW-24040: 2740g WGSW-24040R: 2850g
LED	Power, fan alert, 10/100/1000 Link / Act per RJ45 port, 100/1000 Link / Act per SFP port,
Power Consumption	Max. 21.0 watts / 71.652 BTU
Power Requirements	WGSW-24040 / WGSW-24040R: 100~240V AC, 50/60Hz WGSW-24040R: -48V DC @ 0.6A, DC voltage range: 30 ~ 60V
Layer 2 function	
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 based VLAN Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-based VLAN Voice VLAN IP Subnet-based VLAN MVR (Multicast VLAN Registration) Up to 255 VLAN groups, out of 4094 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP / static trunk 12 groups of 8-Port trunk supported
Spanning Tree Protocol	STP, IEEE 802.1D Spanning Tree Protocol RSTP, IEEE 802.1w Rapid Spanning Tree Protocol MSTP, 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. 8 VLAN interfaces
Routing Table	Max. 32 routing entries
Routing Protocols	IPv4 software static routing IPv6 software static routing
Management	
Basic Management Interfaces	Console / Telnet / Web browser / SNMP v1, v2c
Secure Management Interfaces	SSH, SSL, SNMP v3
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	
Regulation 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 802.3x 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 RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP version 1 RFC 2236 IGMP version 2 RFC 3376 IGMP version 3 RFC 2710 MLD version 1 FRC 3810 MLD version 2
Environment	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 20 ~ 95% (non-condensing)
Storage	Temperature: -20 ~ 70 degrees C Relative Humidity: 20 ~ 95% (non-condensing)

Ordering Information

WGSW-24040	L2+ 20-Port 10/100/1000T + 4-Port Gigabit TP/SFP Managed Switch
WGSW-24040R	L2+ 20-Port 10/100/1000T + 4-Port Gigabit TP/SFP Managed Switch / 48V DC Redundant Power

Related Products

WGSD-10020	L2+ 8-Port 10/100/1000T + 2 100/1000X SFP Managed Switch
XGSW-28040	L2+ 24-Port 10/100/1000T + 4-Port Shared SFP + 4-Port 10G SFP+ Managed Switch
WGSW-20160HP	L2+ 16-Port 10/100/1000T 802.3at PoE + 4-Port Gigabit TP/SFP Combo Managed Switch (230W)
WGSW-24040HP	L2+ 24-Port 10/100/1000T 802.3at PoE + 4-Port Shared SFP Managed Switch (220W)
WGSW-24040HP4	L2+ 24-Port 10/100/1000T 802.3at PoE + 4-Port Shared SFP Managed Switch (440W)
WGSW-48040HP	L2+ 48-Port 10/100/1000T 802.3at PoE + 4-Port Shared SFP Managed Switch (600W)
POE-E201	IEEE 802.3at Power over Gigabit Ethernet Extender

Available Modules

MGB-GT	SFP-Port 1000BASE-T Module
MGB-SX	SFP-Port 1000BASE-SX mini-GBIC module
MGB-LX	SFP-Port 1000BASE-LX mini-GBIC module
MGB-L30	SFP-Port 1000BASE-LX mini-GBIC module - 30km
MGB-L50	SFP-Port 1000BASE-LX mini-GBIC module - 50km
MGB-L70	SFP-Port 1000BASE-LX mini-GBIC module - 70km
MGB-L120	SFP-Port 1000BASE-LX mini-GBIC module -120km
MGB-LA10	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 10km
MGB-LB10	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 10km
MGB-LA20	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 20km
MGB-LB20	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 20km
MGB-LA40	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 40km
MGB-LB40	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 40km
MFB-FX	SFP-Port 100BASE-FX Transceiver (1310nm) - 2km
MFB-F20	SFP-Port 100BASE-FX Transceiver (1310nm) - 20km
MFB-F40	SFP-Port 100BASE-FX Transceiver (1310nm) - 40km
MFB-F60	SFP-Port 100BASE-FX Transceiver (1310nm) - 60km
MFB-FA20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1310nm) - 20km
MFB-FB20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1550nm) - 20km