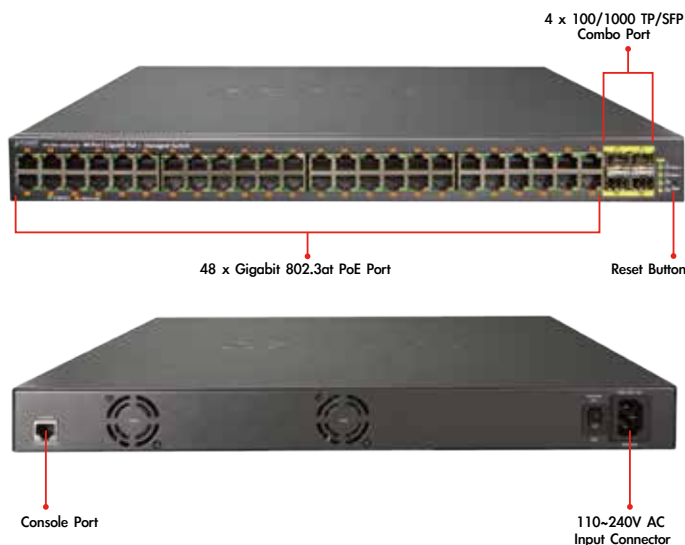


L2+ 48-Port 10/100/1000T 802.3at PoE + 4-Port Shared 100/1000X SFP Managed Switch with Hardware Layer 3 IPv4/IPv6 Static Routing



Ideal Combination of Power over Ethernet Solution and Layer 3 Static Routing

The WGSW-48040HP is PLANET's first one 48-port Layer 2 Plus 802.3at PoE Managed Gigabit Switch, which provides high density performance and supports IPv4 and IPv6 Layer 3 static routing. The WGSW-48040HP has 48 IEEE 802.3at PoE+ ports and PoE budget up to 600 watts for catering to medium to large scale of VoIP or IP Surveillance networks at a lower total cost.



Cost-effective PoE Switch

The WGSW-48040HP can work with PLANET's POE-E201 extender for reaching up to 200M, 300M or longer distance. Meanwhile, with its 96Gbps high performance switch architecture and 600-watt PoE power budget, the WGSW-48040HP can power up 36 or more PoE IP cameras, through which the recorded video files could be managed by 8/16/32-channel NVR systems or surveillance software for performing comprehensive security monitoring. In the past, customers might need to purchase two or more switches to build the VoIP or IP surveillance network. From now on, customers only need one WGSW-48040HP to achieve the goal; this would be cost-effective, save time and human resource.

Solution for IPv6 Networking

Faced with the increasingly large number of IP cameras and Wireless APs installed and deployed in all kinds of applications, more and more network facilities start to support the IPv6 protocol for the next-generation networking. By supporting both the IPv4 and IPv6 and plenty of management functions with easy and friendly management interfaces, the WGSW-48040HP is the best choice for IP surveillance and wireless service providers to connect with the IPv6 network.

Physical Port

- **48-port 10/100/1000Base-T** RJ-45 copper with IEEE 802.3at / 802.3af Power over Ethernet Injector function
- 4 SFP shared combo interfaces, SFP(Mini-GBIC) supports 100/1000Mbps dual mode, shared with Port-45 to Port-48
- RJ-45 to RS-232 console interface for basic management and setup

Power over Ethernet

- Complies with IEEE 802.3at High Power over Ethernet End-Span PSE
- Complies with IEEE 802.3af Power over Ethernet End-Span PSE
- Up to 48 ports of IEEE 802.3af / 802.3at devices powered
- Supports PoE power up to 30.8 watts for each PoE port
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100 meters
- PoE Management
 - Total PoE power budget control
 - Per port PoE function enable/disable
 - PoE Port Power feeding priority
 - Per PoE port power limit
 - PD classification detection
 - PD alive-check
 - PoE schedule
 - PD power recycling schedule

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 / Unknown-Unicast
- Supports VLAN
 - IEEE 802.1Q Tagged VLAN
 - Up to 255 VLANs groups, out of 4094 VLAN IDs
 - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
 - Private VLAN Edge (PVE)
 - Protocol-based VLAN

Centralized Power Management for Gigabit Ethernet PoE Networking

To fulfill the needs of higher power required PoE network applications with Gigabit speed transmission, the WGSW-48040HP features high-performance Gigabit IEEE 802.3af PoE (up to 15.4 watts) and IEEE 802.3at PoE+ (up to 30 watts) on all ports. It perfectly meets the power requirement of PoE VoIP phone and all kinds of PoE IP camera such as IR, PTZ, speed dome cameras or even box type IP cameras with built-in fan and heater for high power consumption.

The WGSW-48040HP's PoE capabilities also help to reduce deployment costs for network devices as a result of freeing from restrictions of power outlet locations. Power and data switching are integrated into one unit, delivered over a single cable and managed centrally. It thus eliminates cost for additional AC wiring and reduces installation time.

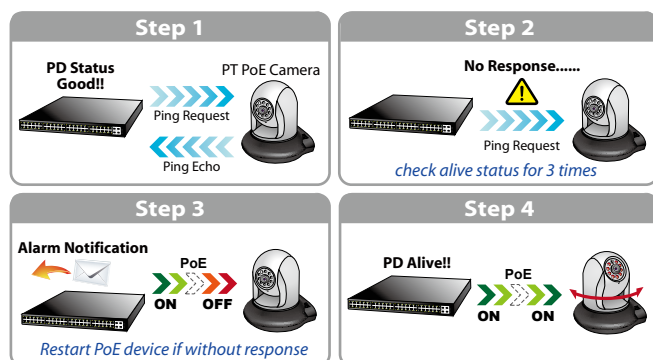
Built-in Unique PoE Functions for Surveillance Management

As a Managed PoE Switch for surveillance network, the WGSW-48040HP features intelligent PoE Management functions:

- PD Alive Check
- Scheduled Power Recycling
- SMTP/SNMP Trap Event Alert
- PoE Schedule

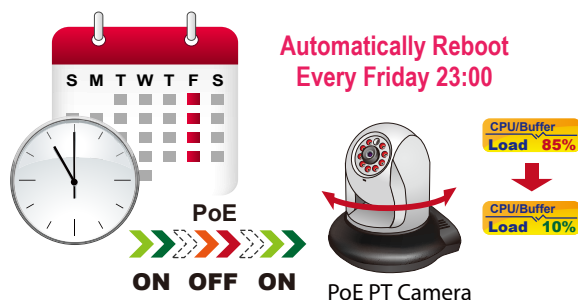
Intelligent Powered Device Alive Check

The WGSW-48040HP can be configured to monitor connected PD (Powered Device) status in real-time via ping action. Once the PD stops working and it is without response, the WGSW-48040HP will resume the PoE port power and bring the PD back to work. It will greatly enhance the network reliability through the PoE port resetting the PD's power source and reduce administrator management burden.



Scheduled Power Recycling

The WGSW-48040HP allows each of the connected PoE IP cameras to reboot in a specific time each week. Therefore, it will reduce the chance of IP camera crash resulting from buffer overflow.



■ SMTP/SNMP Trap Event Alert

Though most NVR or camera management software offers SMTP email alert function, the WGSW-48040HP further provides event alert function to help to diagnose the abnormal device owing to whether or not there is a break of the network connection, loss of PoE power or the rebooting response by PD Alive Check process.

- MAC-based VLAN
- Voice VLAN
- IP Subnet 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, spanning tree by VLAN
 - BPDU Guard
- Supports Link Aggregation
 - 802.3ad Link Aggregation Control Protocol (LACP)
 - Cisco ether-channel (Static Trunk)
 - Maximum 24 trunk groups, up to 8 ports per trunk group
 - Up to 16Gbps bandwidth (full duplex mode)
- 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 128 static routes and route summarization

Quality of Service

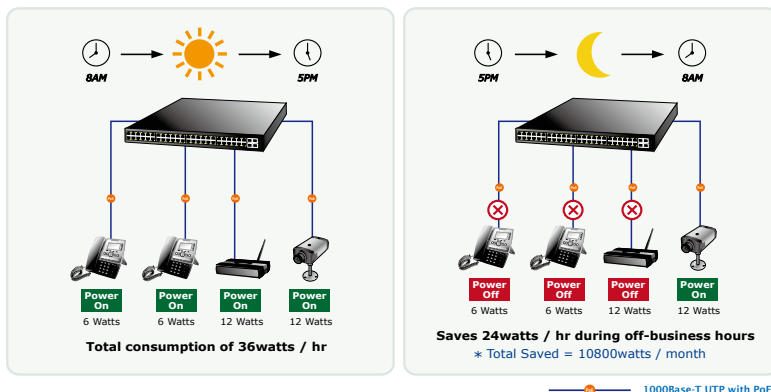
- Ingress Shaper and Egress Rate Limit per port bandwidth control
- 8 priority queues on all switch ports
- Traffic classification
 - IEEE 802.1p CoS
 - TOS / DSCP / IP Precedence of IPv4/IPv6 packets
 - IP TCP/UDP port number
 - Typical network application
- Strict priority and Weighted Round Robin (WRR) CoS policies
- Traffic-policing policies on the switch port
- DSCP remarking

Multicast

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

PoE Schedule for Energy Saving

Besides being used for IP Surveillance, the WGSW-48040HP is certainly applicable to construct any PoE network including VoIP and wireless LAN. Under the trend of energy saving worldwide and contributing to the environmental protection on the Earth, the WGSW-48040HP can effectively control the power supply besides its capability of giving high watts power. The "PoE schedule" function helps you to enable or disable PoE power feeding for each PoE port during specified time intervals and it is a powerful function to help SMB or Enterprise save power and money.



Robust Layer 2 Features

The WGSW-48040HP 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. The WGSW-48040HP also provides 802.1Q Tagged VLAN, and the VLAN groups allowed will be maximally up to 255. Via the aggregation of supporting ports, the WGSW-48040HP allows the operation of a high-speed trunk combining multiple ports and supports fail-over as well.

IPv4 and IPv6 VLAN Routing for Secure and Flexible Management

To help customers stay on top of their businesses, the WGSW-48040HP switch not only provides ultra high transmission performance and excellent layer 2 technologies, but also offers IPv4/IPv6 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.

Enhanced Security

The WGSW-48040HP 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 of 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. Furthermore, the WGSW-48040HP 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 secured corporate networks with considerably less time and effort than before.

Security

- 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
- IP-based Access Control List (ACL)
- MAC-based Access Control List
- Source MAC / IP address binding
- **DHCP Snooping** to filter untrusted 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

- Switch Management Interfaces
 - Console / Telnet Command Line Interface
 - Web switch management
 - SNMP v1, v2c, and v3 switch management
 - SSH / SSL secure access
- Four RMON groups (history, statistics, alarms, and events)
- IPv6 IP Address / NTP / DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- Firmware upload / download via HTTP / TFTP
- DHCP Relay
- DHCP Option82
- User Privilege levels control
- NTP (Network Time Protocol)
- Link Layer Discovery Protocol (LLDP)
- SFP-DDM (Digital Diagnostic Monitor)
- Cable Diagnostic technology provides the mechanism to detect and report potential cabling issues
- Reset button for system reboot or reset to factory default
- PLANET Smart Discovery Utility for deploy management
- ICMPv6

Efficient and Secure Management

The WGSW-48040HP Managed Switch is equipped with console, WEB and SNMP management interfaces. With the built-in Web-based management interface, the WGSW-48040HP offers an easy-to-use, platform-independent management and configuration facility. The WGSW-48040HP supports standard Simple Network Management Protocol (SNMP) and can be managed via any management software that supports SNMP protocol. For text-based management, the WGSW-48040HP can be accessed via Telnet and the console port. Moreover, the WGSW-48040HP offers secure remote management by supporting SSH, SSL and SNMPv3 connection which encrypt the packet content at each session.

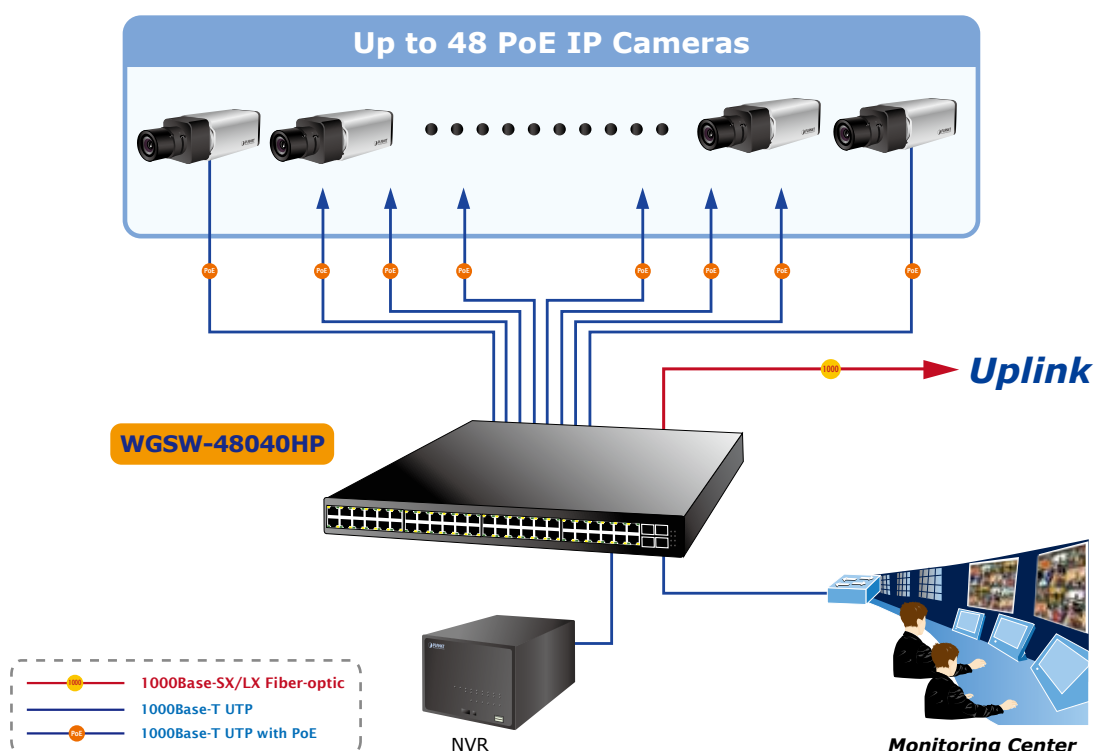
Flexible and Extendable Uplink Solution

The WGSW-48040HP provides 4 extra Gigabit TP/SFP combo interfaces supporting 10/100/1000Base-T RJ-45 copper to connect with surveillance network devices such as NVR, Video Streaming Server or NAS to facilitate surveillance management. Or through these dual-speed fiber SFP slots, it can also connect with the 100Base-FX / 1000Base-SX/LX SFP (Small Form-factor Pluggable) fiber transceiver to backbone switch and monitoring center in long distance. The distance can be extended from 550 meters to 2 kilometers (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.

Application

High Density of IP Surveillance Network

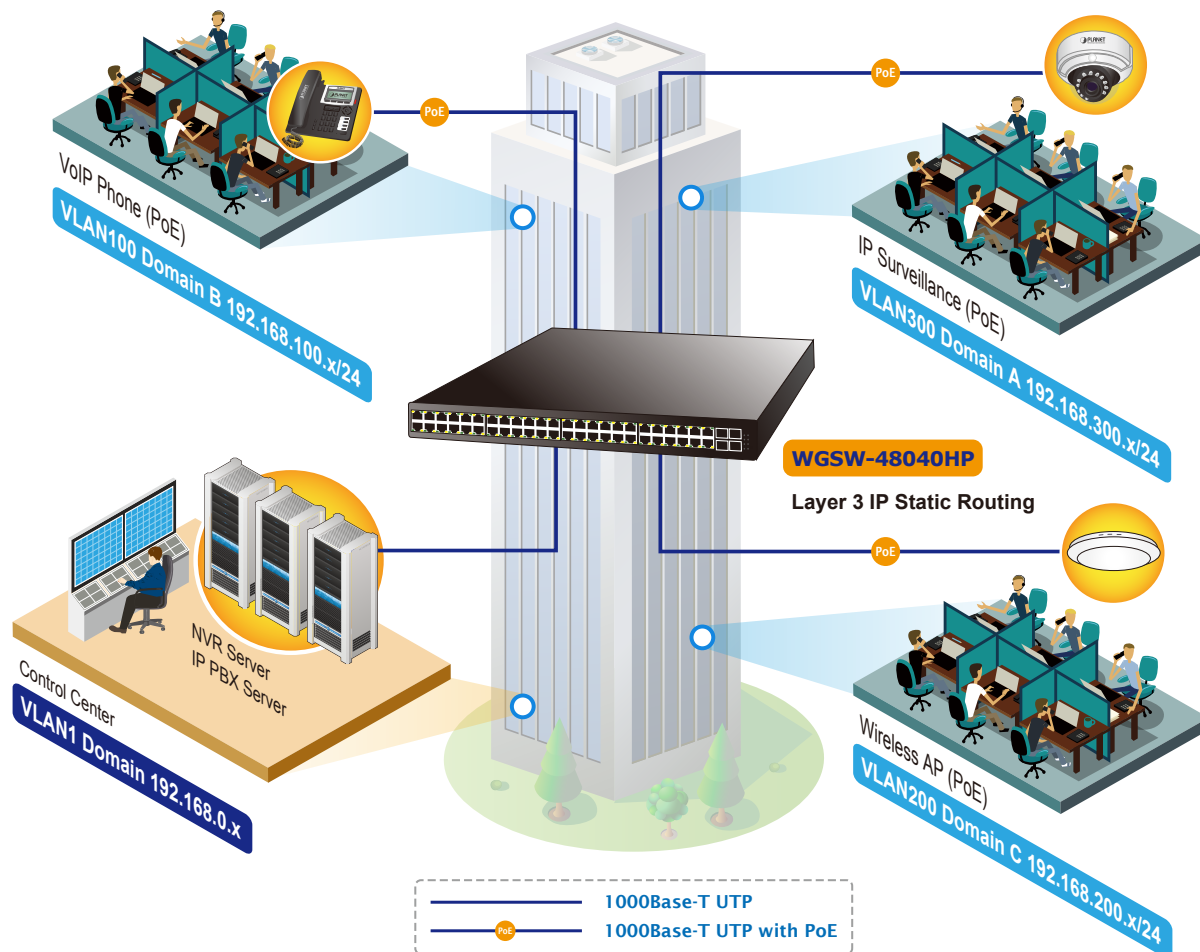
Providing up to 48 PoE+, in-line power interfaces and 4 Gigabit TP/SFP combo interfaces, the WGSW-48040HP can easily build a power centrally controlled IP camera system for the enterprises. It can work with 8/16/32-channel NVR and surveillance software to perform comprehensive security monitoring. For instance, one WGSW-48040HP can combine with one 32-channel NVR and one 8-channel NVRs; that is, each of its PoE ports can link to a specific PoE IP camera for the administrators centrally and efficiently manage the surveillance system in one site. The 4 Gigabit TP/SFP combo interfaces in the WGSW-48040HP also provide flexible Gigabit TP or fiber connection for uplink to public server groups.



Layer 2+ VLAN Static Routing and PoE Application

The WGSW-48040HP 48-port Gigabit IEEE 802.3at High Power PoE Web Management switch features both **IEEE 802.3af** and **High Power IEEE 802.3at** Power over Ethernet (PoE) that combines up to **30-watt** power output per port, and PoE budget is up to **600 watts** which can deploy up to 48 PoE devices. With the built-in robust IPv4 / IPv6 Layer 3 traffic routing protocols, the WGSW-48040HP ensures reliable routing between VLANs and network segments. The routing protocols can be applied by VLAN interface with up to 128 routing entries. The WGSW-48040HP is certainly a cost-effective and ideal solution for enterprises

VLAN Routing + PoE Applications



Specifications

Product		WGSW-48040HP	
Hardware Specifications			
Copper Ports		48 10/100/1000Base-T RJ-45 auto-MDI/MDI-X ports	
SFP/mini-GBIC Slots		4 100/1000Base-X SFP interfaces, shared with Port-45 to Port-48 Compatible with 100Base-FX SFP transceiver	
Console		1 x RJ-45 to RS-232 serial port (115200, 8, N, 1)	
Switch Architecture		Store-and-Forward	
Switch Fabric		96Gbps / non-blocking	
Throughput		71.4 Mpps@64Bytes	
Address Table		16K entries, automatic source address learning and ageing	
Share Data Buffer		16M bits	
Flow Control		IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex	
Jumbo Frame		10056bytes	
Reset Button		< 5 sec: System reboot > 5 sec: Factory default	
Dimensions (W x D x H)		440 x 440 x 44.2 mm, 1U height	
LED		System: Power (Green), SYS (System, Green) Alert: Fan Alarm 1 (Red), Fan Alarm 2 (Red) PoE Ethernet Interfaces (Port 1 to Port 48): LNK/ACT (10/100/1000Mbps, Green), PoE-in-Use (Orange) 100/1000Mbps SFP Combo Interfaces (Port 45 to Port 48): LNK/ACT (100/1000X, Green)	
Power Requirements		100-240V AC, 50/60Hz, 12A	
Power Consumption		722 watts / 2462 BTU	
ESD Protection		2KV DC	
Power over Ethernet			
PoE Standard		IEEE 802.3af / 802.3at PoE / PSE	
PoE Power Supply Type		End-Span	
PoE Power Output		Per Port 52V DC, 590mA Max. 30.8 watts	
Power Pin Assignment		1/2(+), 3/6(-)	
PoE Power Budget		600 watts (max.) @ 25 degrees C	
PoE Ability	PD @ 11 watts	48 units	
	PD @ 15.4 watts	38 units	
	PD @ 30.8 watts	19 units	
Layer 2 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-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) GVRP Up to 255 VLAN groups, out of 4094 VLAN IDs	
Link Aggregation		IEEE 802.3ad LACP / Static Trunk 24 groups of 8-Port trunk support	
Spanning Tree Protocol		STP / RSTP / MSTP	

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. 32 routing entries
Routing Protocols	IPv4 Static Routing IPv6 Static Routing
Management Functions	
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 3411 SNMP-Frameworks-MIB RFC 4292 IP Forward MIB RFC 4293 IP MIB RFC 4836 MAU-MIB IEEE 802.1X PAE LLDP PoE-Ethernet MIB
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 1000Base-SX/LX IEEE 802.3ab 1000Base-T 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 IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet PLUS 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 RFC 3810 MLD version 2

Ordering Information

WGSW-48040HP

L2+ 48-Port 10/100/1000T 802.3at PoE +
4-Port Shared 100/1000X SFP Managed Switch with Hardware Layer3 IPv4/IPv6 Static Routing

Related PoE Products

ICA-1200	Full HD PoE Cube IP Camera
ICA-2200	Full HD PoE Box IP Camera
ICA-2250VT	Industrial PoE Plus Outdoor IR IP Camera
ICA-2500	5 Mega-pixel PoE Box IP Camera
ICA-3250V	Full HD Outdoor IR PoE IP Camera
ICA-3350V	3 Mega-pixel Vari-focal Bullet IR IP Camera
ICA-4200V	Full HD 20M IR Vari-focal Dome IP Camera
ICA-4500V	5 Mega-pixel 20M IR Vari-focal Dome IP Camera
ICA-5250	Full HD Ultra-mini Vandal Dome
ICA-5350V	3 Mega-pixel Vandalproof IR IP Camera
ICA-HM101	2 Mega-pixel PoE Cube IP Camera
ICA-HM127	3 Mega-pixel H.264 Box IP Camera
ICA-HM131	H.264 Full-HD Fixed Dome IP Camera
ICA-HM132	H.264 2 Mega-pixel 20M IR Vari-focal Dome IP Camera
ICA-HM136	H.264 2 Mega-pixel 20M IR Vandalproof Dome IP Camera
ICA-HM312	2 Mega-pixel 25M IR Outdoor Bullet PoE IP Camera
ICA-HM316	2 Mega-pixel Outdoor IR PoE IP Camera
ICA-HM351	2 Mega-pixel 35M IR Outdoor Box PoE IP Camera
ICA-HM620	2 Mega-pixel PoE Plus Speed Dome Internet Camera
POE-152S	IEEE 802.3af Power over Ethernet Splitter
POE-162S	IEEE 802.3at Gigabit High Power over Ethernet Splitter
POE-E101	IEEE 802.3af Power over Ethernet Extender
POE-E201	IEEE 802.3at Power over Ethernet Extender
WNAP-C3220	802.11n Wireless Ceiling Mount PoE Access Point
WNAP-1120PE	802.11n Wireless Access Point with PoE
WNAP-W2200	802.11n 300Mbps In-Wall Access Point w/ USB Charger (EU Type)
WDAP-C7400	900Mbps Dual Band Ceiling-mount Wireless Access Point
ICF-1700	Touch Screen Internet Multimedia Phone
VIP-256PT	802.3af PoE SIP IP Phone
VIP-2020PT	Enterprise HD PoE IP Phone (2-Line)
VIP-5060PT	Professional HD PoE IP Phone (6-Line)