Product Specifications

Wireless AP Managed Switch with 8-Port 802.3at PoE + 2-Port 10G SFP+

WS-1032P

Version 1.0

Change History:

Revision:	Date:	Author:	Change List
Version 1.0	2021/8/9	Sky Chen	Initial Release

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1. PRODUCT DESCRIPTION

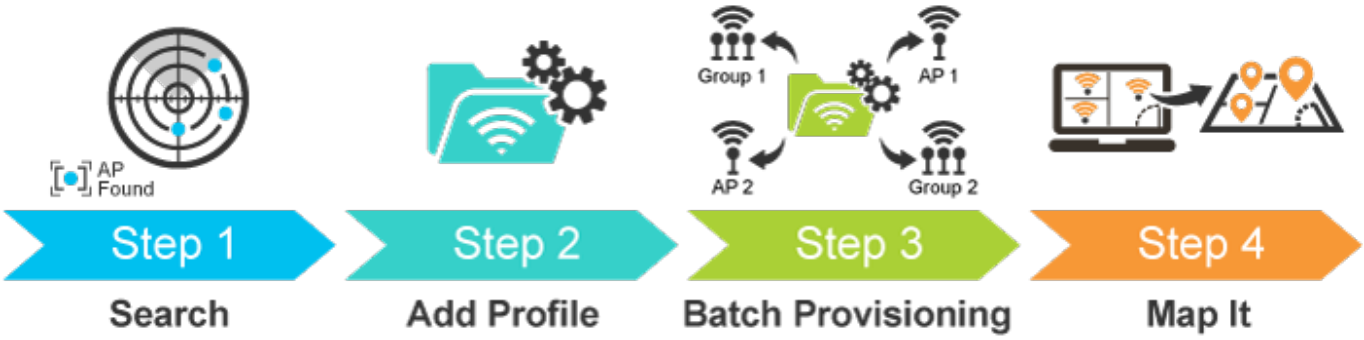
Wireless Management Solution with PoE

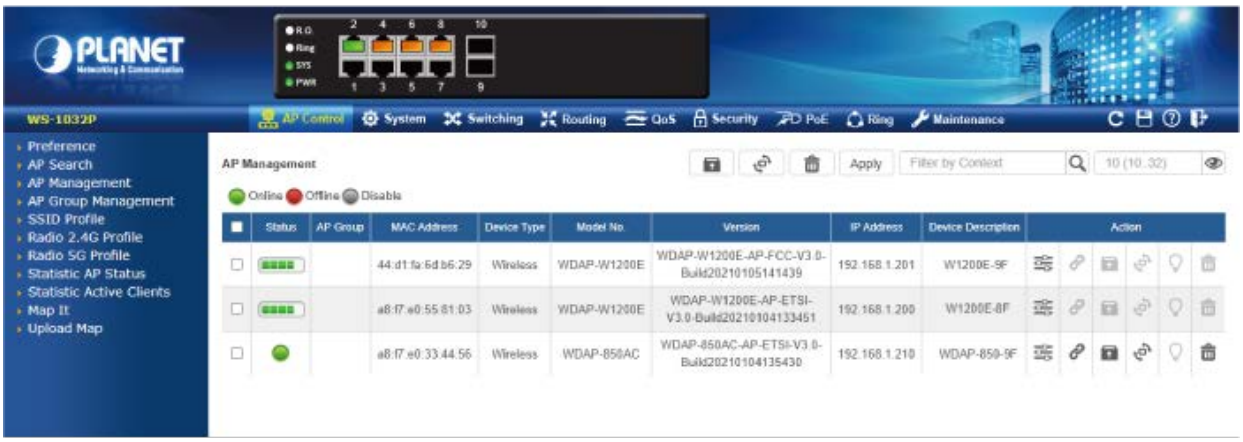
PLANET WS-1032P, an enhanced Wireless AP Managed Switch, features **Smart AP control**, **Layer 3 OSPF/static routing** and **Intelligent PoE capability** to enable service providers and IT managers to control all wireless APs at the same time in small- and medium-scale wireless network environments, such as hotels, villas, resorts and any public area. The WS-1032P provides IPv6/IPv4 dual stack management and built-in L2/L4 Gigabit Switching engine along with 8 10/100/1000BASE-T ports featuring up to 36-watt 802.3at PoE+, and 2 extra 1/2.5/10 Gigabit BASE-X SFP+ fiber slots which definitely offer enterprises a quick, safe and cost-effective AP Control with Power over Ethernet network solution.

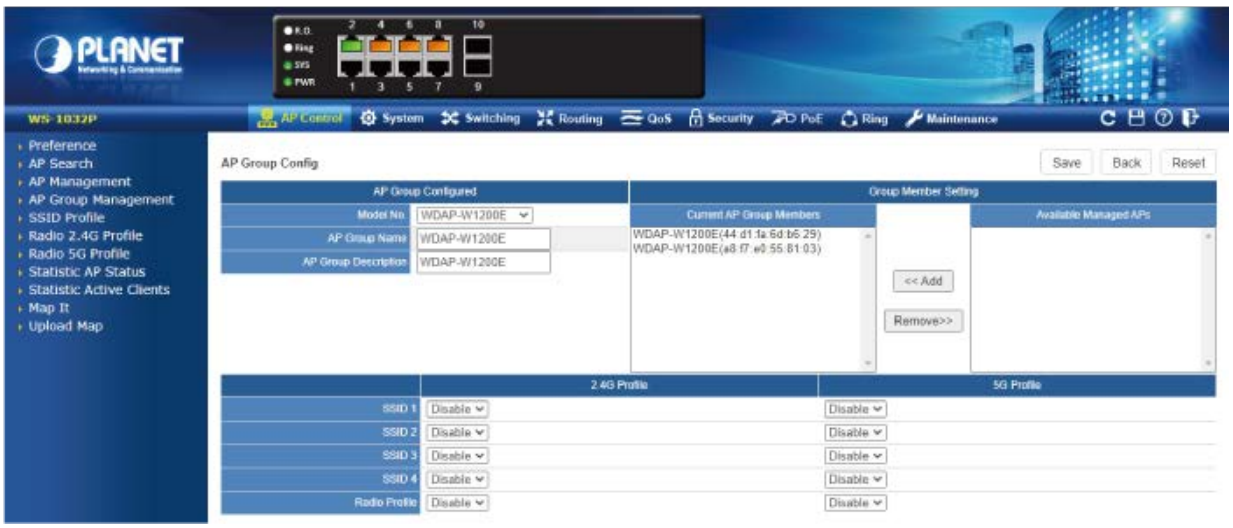
Four Steps to Manage AP Cluster within Minutes

The WS-1032P offers a user-friendly Web GUI for easy configuration. It features centralized management of PLANET Smart AP series without needing to manually configure each AP for the wireless SSID, radio band and security settings. With a four-step configuration process, different purposes of wireless profiles can be simultaneously delivered to multiple APs or AP groups to minimize deployment time, effort and cost.

Simplified Cluster Management with 4 Steps

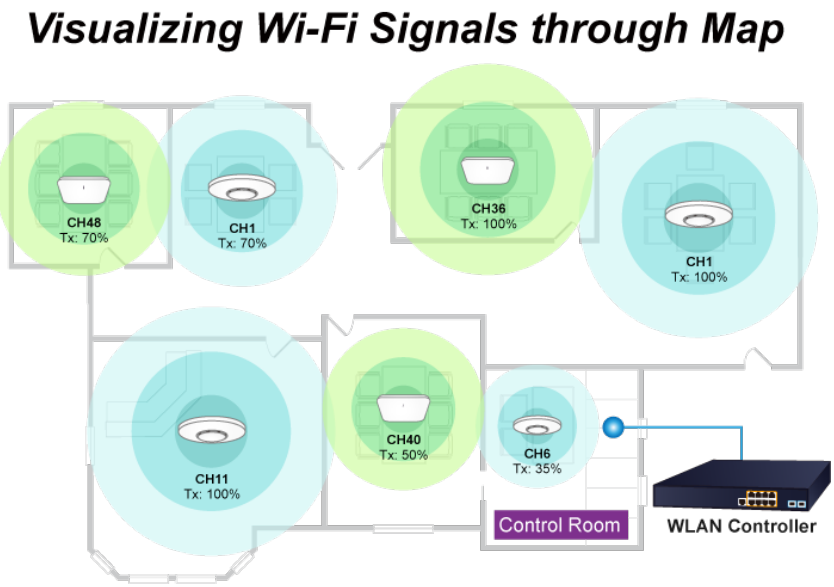






Visualizing Wi-Fi Signals through Map

Importing your floor maps and locating each AP or AP group according to the field deployment can save your time and cost of on-site support and monitoring. It shows real-time AP status, and its signal heat map is capable of reflecting the actual coverage and helps the administrator to fine-tune the overlapping of the adjacent APs anytime to optimize the wireless network performance.



Maximal Scalability and Compatibility with Various Smart APs

To fulfill various business needs, the WS-1032P provides a maximum scalability and is compatible with over 10 models of Smart APs from indoor to outdoor series including ceiling-mount, wall-mount, in-wall, industrial, single-band, dual-band and high-power access points which are able to adapt to different environments.

10Gbps Ethernet Uplink for High-volume Transmission

As to the bandwidth, the WS-1032P offers 10Gbps uplink ports to relieve huge network traffic. Each of the 10G SFP+ slots in the WS-1032P supports **triple speed** and **10GBASE-SR/LR, 1000BASE-SX/LX or 2500BASE-X**. With its 10G 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 WS-1032P provides greater bandwidth and powerful processing capacity to make central management more efficient.

Unique PoE Management Features

The WS-1032P has a built-in L2/L4 Gigabit Switching engine and 8 10/100/1000BASE-T ports featuring 36-watt 802.3at PoE+, with a total power budget of up to 120W for different kinds of PoE applications. It perfectly meets the power requirements of PoE Wi-Fi access points including dual-band or outdoor high-power AP/CPE with high power consumption. As a managed PoE Switch for stable and reliable wireless AP operation, the WS-1032P features the following intelligent PoE management functions:

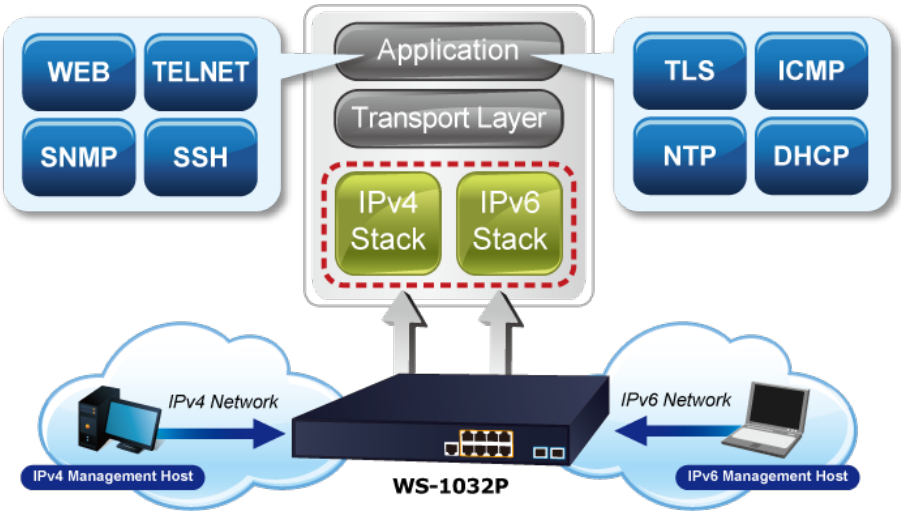
- PD Alive Check
- Scheduled Power Recycling
- SMTP/SNMP Trap Event Alert
- PoE Schedule

Layer 3 Routing Support

The WS-1032P enables the administrator to conveniently boost network efficiency by configuring Layer 3 IPv4/IPv6 VLAN static routing manually, the **RIPv1/v2** and the **OSPFv2/v3** (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.

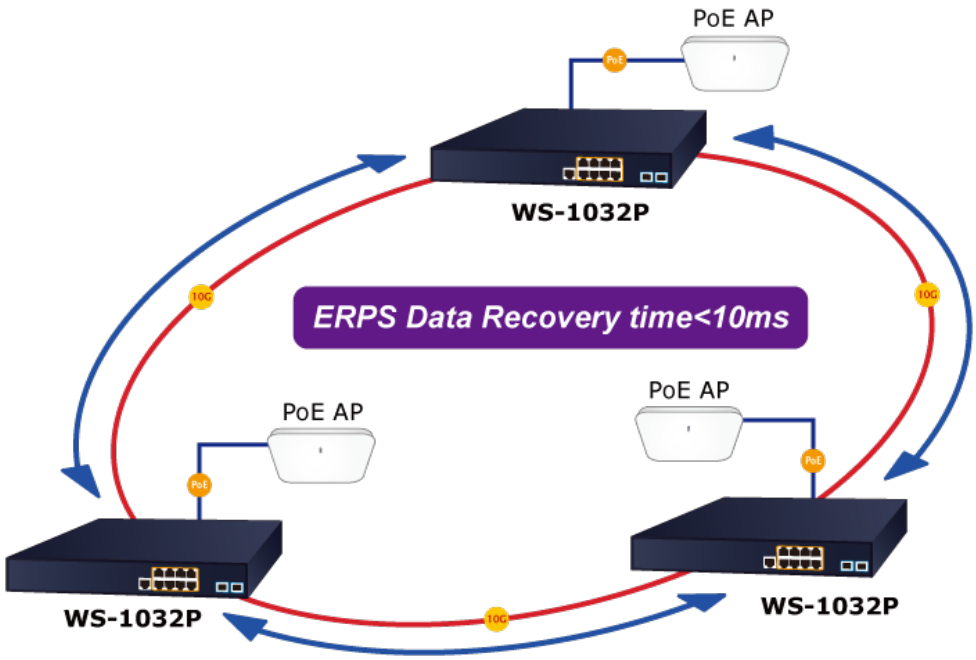
IPv4/IPv6 Dual Stack Management Network

The WS-1032P offers IPv4/IPv6 VLAN routing feature which allows to cross over different VLANs and different IP addresses for the purpose of having a highly-secure, flexible management and simpler networking application. With the support for IPv6/IPv4 protocol, and user-friendly management interfaces, the WS-1032P is the best choice for system integrators to migrate network infrastructure from the IPv4 to the IPv6 network. It also helps SMBs to step in the IPv6 era with the lowest investment and without having to replace the network facilities even though ISPs establish the IPv6 FTTx edge network.



Optimal Redundant Ring for Faster Recovery of Managed Network

The WS-1032P 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, and Spanning Tree Protocol (802.1w RSTP) into customer's network to enhance system reliability and uptime in harsh environments. In a certain simple ring network, the recovery time could be **less than 10ms** to quickly bring the network back, thus enabling the management network to keep on operating.



User-friendly Secure Management

For efficient management, the WS-1032P is equipped with console, Web and SNMP management interfaces.

- With the built-in **Web-based** management interface, it offers an easy-to-use, platform-independent management and configuration facility.
- For **text-based** management, it can be accessed via Telnet and the console port.
- For standard-based monitor and management software, it offers SNMPv3 connection which encrypts the packet content at each session for secure remote management.

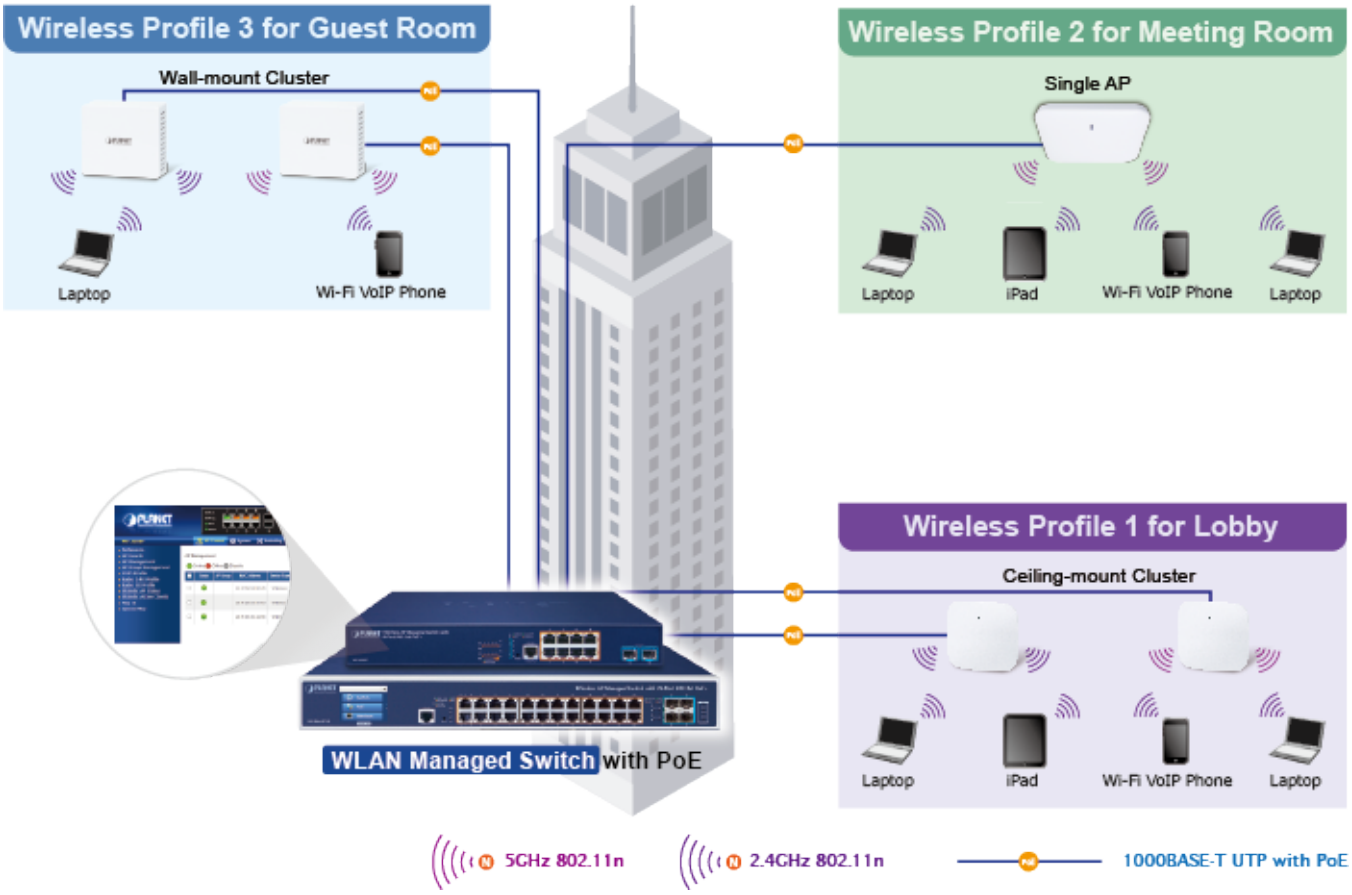
Cybersecurity Network Solution to Minimize Security Risks

The cyber security feature included to protect the switch management in a mission-critical network virtually needs no effort and cost to install. Both SSHv2 and TLSv1.2 protocols are utilized to provide strong protection against advanced threats. The network administrator can now construct highly-secure corporate networks with considerably less time and effort than before.

Centralized AP Management for Enterprises

PLANET WS-1032P Wireless AP Managed Switch helps service providers and IT managers control all wireless APs at the same time. The WS-1032P enables administrators to effectively manage various wireless access points deployed in different locations. The administrator can automatically discover, configure, update and monitor all the managed APs through one single browser-based web user interface. Such design avoids the need to configure the wireless APs one by one.

AP Cluster Management



2. Product Features

- **Physical Port**
  - **8-port 10/100/1000BASE-T** with 36W PoE injector function
  - **2-port 1/2.5/10GBASE-X** SFP+
  - RS232 RJ45 console interface for switch basic management and setup

- **Wireless LAN AP Management**
  - Dashboard: provides at-a-glance view of system and wireless network status
  - AP Discovery: one key to discover the managed APs on the managed LAN
  - Customized Profile: allows multiple wireless profiles creation and maintenance
  - Auto Provision: multi-AP provisioning with one click
  - Cluster Management: simplifies high-density AP management
  - Zone Plan: optimizes AP deployment with actual signal coverage
  - Analysis: real-time AP status monitoring
  - Scalability: free system upgrade and AP firmware bulk upgrade capability
- **Power over Ethernet**
  - Up to 8 ports of IEEE 802.3af/802.3at devices powered
  - Supports PoE Power up to 36 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 features
    - Total PoE power budget control
    - Per port PoE function enable/disable
    - PoE admin-mode control
    - PoE port power feeding priority
    - Per PoE port power limit
    - PD classification detection
  - Intelligent PoE features
    - Temperature threshold control
    - PoE usage threshold control
    - PD alive check
    - PoE schedule
- **Layer 3 IP Routing Features**
  - IP dynamic routing protocol supports RIPv2, OSPFv2 and OSPFv3
  - IPv4/IPv6 hardware static routing
  - 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
    - Broadcast/Multicast/Unknown unicast
  - Supports **VLAN**
    - IEEE 802.1Q tagged VLAN
    - Supports provider bridging (VLAN Q-in-Q, IEEE 802.1ad)
    - Private VLAN Edge (PVE)

- –Protocol-based VLAN
- –MAC-based VLAN
- –Voice VLAN
- –GVRP(GARP VLAN Registration Protocol)

- 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 5 trunk groups, up to 10 ports per trunk group
  - –Up to 56Gbps bandwidth (full duplex mode)
- Provide sport mirror (many-to-1)
- Port mirroring to monitor the incoming or outgoing traffic on a particular port
- Loop protection to avoid broadcast loops
- Link Layer Discovery Protocol (LLDP)
- 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
- Supports G.8032 ERPS (Ethernet Ring Protection Switching)

- **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
  - Supports QoS and In/Out bandwidth control on each port
  - Traffic-policing policies on the switch port
  - DSCP remarking

- **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
  - Multicast VLAN Registration (MVR) support

- **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

- Access Control List
  - IP-based Access Control List (ACL)
  - MAC-based Access Control List
- Source MAC/IP address binding
- **DHCP Snooping** to filter un-trusted 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
  - SSHv2, TLSv1.2 secure access
- **IPv6** IP Address/NTP/DNS 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
- DHCP Option82
- User Privilege levels control
- NTP (Network Time Protocol)
- Link Layer Discovery Protocol (LLDP) and LLDP-MED
- Network Diagnostic
  - SFP-DDM (Digital Diagnostic Monitor)
  - ICMPv6/ICMPv4 Remote Ping
  - Cable Diagnostic technology provides the mechanism to detect and report potential cabling issues
- SMTP/Syslog remote alarm
- Four RMON groups (history, statistics, alarms and events)
- SNMP trap for interface Linkup and Linkdown notification
- System Log
- PLANET Smart Discovery Utility for deployment management
- PLANET UNI-NMS (Universal Network Management) and Smart Discovery Utility for deployment management

3. Product Specifications

3.1 MAIN COMPONENTS

Switch ASIC:	VITESSE VSC7440	x 1
Switch PHY:	VITESSE VSC8512XJG-02	x 1
CPU:	MIPS 500MHz (integrated with VSC7440)	-
PSE Chipset:	IP808AR/MQFN48	x 1
DRAM:	512Mbytes	x 1
Flash:	64Mbytes	x 1

Product	**WS-1032P**
Hardware Specifications	
Copper Ports	8 x 10/100/1000BASE-T RJ45 Auto-MDI/MDI-X interface with Port-1 to Port-8
SFP Ports	2 x 1G/2.5G/10G BASE-X SFP interfaces with Port-9 to Port-10
PoE Injector Port	8 ports with 802.3at/afPoE injector function with Port-1 to Port-8
Console	1 x RJ45 serial port (115200, 8, N, 1)
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
Power Requirements	100~240V AC, 50/60Hz
Power Consumption (Full Loading)	Max. 14.8 watts/50.47BTU (Power on without any connection) Max. 162 watts/552.42BTU (Full loading with PoE+ function)
ESD Protection	6KV DC
EFT Protection	4KV
Dimensions (W x D x H)	330 x 150 x 44.5mm, 1U height
Weight	1.6 KG
LED	**System:** R.O (Green),Ring (Green), SYS (Green), PWR (Green) **10/100/1000BASE-T RJ45 Interfaces (Port 1 to Port 8):** 10/100/1000Mbps LNK/ACT (Green) PoE-in-Use (**Amber**) (Port 1 to Port 8) **1G/2.5G/10G Mbps SFP Interfaces (Port 9 to Port 10):** 1G/2.5G LNK/ACT (Green) 10G LNK/ACT (**Amber**)
Switching	
Switch Architecture	Store-and-Forward
Switch Fabric	56 Gbps/non-blocking
Throughput	41.67Mpps@ 64Bytes packet
Address Table	8K entries, automatic source address learning and aging
Shared Data Buffer	4.1Mbits
Flow Control	IEEE 802.3x pause frame for full duplex

	Back pressure for half duplex
Jumbo Frame	9KB
Wireless AP Management	
Maximum Managed APs	32
Maximum AP Groups	10
Maximum APs per AP Group	32
Wireless Encryption/Security	■ WEP encryption security ■ WPA Personal / Enterprise (TKIP / AES) ■ WPA2 Personal / Enterprise (TKIP / AES) ■ Enterprise Class 802.1x
AP Auto Discovery	Supports AP auto discovery
Dashboard	Summarized system overview includes online AP and activated client number
SSID/RF Profile	Allows multiple wireless profiles creation and maintenance
Cluster Management	Allows AP grouping for bulk provisioning and batch upgrading
Bulk AP Provisioning	Supports bulk AP provisioning with user-defined profiles
Bulk AP Firmware Upgrade	Supports bulk AP firmware upgrade
Coverage Heat Map	Enables real signal coverage of managed AP reflecting on the uploaded zone maps
Status Monitoring	Real-time traffic statistics reporting of AP and activated clients
Graphical Statistics	Real-time and historical visibility of traffic flow
Profile Backup/Restoration	Provides SSID, radio profile backup/restoration
SSIDs-to-VLANs Mapping	Allows to configure SSIDs-to-VLANs mapping in supported APs
Supported Access Point Models[*]	

Indoor AP	Outdoor AP	
WDAP-C7210E	WDAP-850AC	WDAP-702AC
WDAP-W1200E	WDAP-802AC	WBS-502AC
WDAP-C7200E	WBS-512AC	WBS-500N
WDAP-W750E	WBS-502N	WBS-200N
WNAP-C3220E	WBS-202N	WAP-500N
WNAP-W2200UE	WAP-552N	WAP-200N
---	WAP-252N	---

Remarks	The supported AP models may be changed after a firmware upgrade.
Power over Ethernet	
PoE Standard	IEEE 802.3atPoE Plus, PSE Backward compatible with IEEE 802.3af PoE PSE
PoE Power Supply Type	End-span
PoE Power Output	Per port 52V DC, max. 36watts
Power Pin Assignment	1/2(-), 3/6(+)
PoE Power Budget	120 watts (max.) @ 25 degrees C

		100 watts (max.) @ 50 degrees C
PoE Ability	PD @ 7 watts	8 units
	PD @ 15.4 watts	7 units
	PD @ 30.8 watts	3 units
Layer 3 Functions		
IP Interfaces		Max. 128 VLAN interfaces
Routing Table		Max. 128 routing entries
Routing Protocols		IPv4 RIPv2 IPv4 OSPFv2 IPv6 OSPFv3 IPv4 hardware static routing IPv6 hardware static routing
Layer2 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 Supports up to 5 sessions
VLAN		IEEE 802.1Q tag-based VLAN IEEE 802.1ad Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-based VLAN Voice VLAN MVR (Multicast VLAN Registration) Up to 4K VLAN groups, out of 4094 VLAN IDs
Link Aggregation		IEEE 802.3ad LACP/static trunk Supports 5 trunk groups with 10 ports per trunk group
IGMP Snooping		IPv4 IGMP (v1/v2/v3) Snooping, up to 255 multicast groups IPv4 IGMP Querier mode support
MLD Snooping		IPv6 MLD (v1/v2) Snooping, up to 255 multicast groups IPv6 MLD Querier mode support
Ring		Supports ERPS, and complies with ITU-T G.8032 Recovery time < 10ms @ 3 nodes Recovery time <50ms @ 16 nodes Supports Major ring and sub-ring
Access Control List		IP-based ACL/MAC-based ACL Up to 256 entries
Bandwidth Control		Per port bandwidth control Ingress: 10Kbps~13000Mbps Egress: 10Kbps~13000Mbps
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
Security Functions	
Access Control List	IP-based ACL/MAC-based ACL ACL based on: - MAC Address - IP Address - Ethertype - Protocol Type - VLAN ID - DSCP - 802.1p Priority Up to 256 entries
Security	Port Security IP source guard Dynamic ARP inspection Command line authority control based on user level
AAA	RADIUS client TACACS+ client
Network Access Control	IEEE 802.1x port-based network access control MAC-based authentication Local/RADIUS authentication
Switch Management	
Basic Management Interfaces	Console; Telnet Web browser SNMP v1, v2c
Secure Management Interfaces	SSHv2, TLSv1.2, SNMPv3
System Management	Firmware upgrade by HTTP protocol through Ethernet network Configuration upload/download through HTTP Remote Syslog System log LLDP protocol NTP PLANET Smart Discovery Utility PLANET CloudViewer app
Event Management	Remote Syslog Local System log SMTP
SNMP MIBs	RFC1213 MIB-II RFC 2863 IF-MIB RFC 1643 Ethernet MIB RFC2863 Interface MIB RFC2665 Ether-Like MIB RFC2737 Entity MIB

	RFC2819 RMON MIB (Groups 1, 2, 3 and 9) RFC2618 RADIUS Client MIB RFC3411SNMP-Frameworks-MIB IEEE802.1X PAE LLDP MAU-MIB Power over Ethernet MIB
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX IEEE802.3z 1000BASE-SX/LX IEEE 802.3ab 1000BASE-T IEEE 802.3ae 10Gb/s Ethernet IEEE802.3x flow control and back pressure IEEE802.3ad port trunk with LACP IEEE802.1D Spanning Tree Protocol IEEE802.1w Rapid Spanning Tree Protocol IEEE 802.1s Multiple Spanning Tree Protocol IEEE802.1p Class of Service IEEE802.1Q 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 v1 RFC 2236 IGMP v2 RFC 3376 IGMP v3 RFC 2710 MLD v1 RFC 3810 MLD v2 RFC 2328 OSPF v2 RFC 2453 RIP v2 ITU-T G.8032 ERPS Ring
Environments	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -10 ~ 70degrees C Relative Humidity:5 ~ 95% (non-condensing)

3.2 PHYSICAL SPECIFICATIONS:

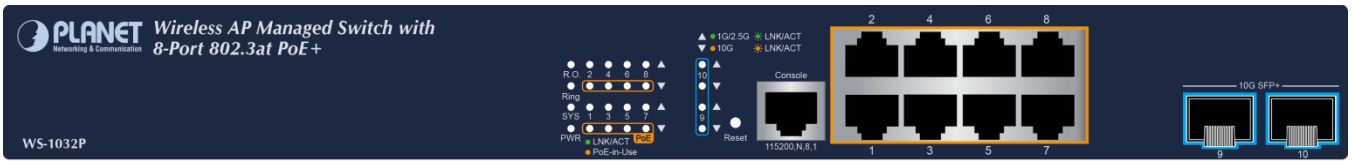
■ **Dimensions:**

330 x 150 x 44.5 mm (W x D x H), 1U height

■ **Weight:**

1.6kg

■ **Front Panel:**



■ **Rear Panel:**

■ **LED Definition**

■ **System**

LED	Color	Function
R.O.	**Green**	Lights to indicate that Switch has enabled Ring Owner.
Ring	**Green**	Lights to indicate the ERPS Ring has been created successfully Off to indicate the Ring function is not working
SYS	**Green**	Lights to indicate the system is working.
PWR	**Green**	**Lights** to indicate that the Switch has power.

PoE 10/100/1000BASE-T Interfaces (Port-1 to Port-8)

LED	Color	Function	
10/100/1000 LNK/ACT	**Green**	**Lights**:	To indicate the port is running at 10/100/**1000Mbp**s speed and successfully established.
		Blinks:	To indicate that the switch is actively sending or receiving data over that port.
802.3at PoE In-Use	**Amber**	**Lights**:	Lights to indicate the PoE port is working in 802.3at PoE+ mode (End-span) and offers up to 36 watts of power.

■ **Per 10GBASE-SR/LR SFP+ Port (Port-9 to Port-10)**

LED	Color	Function	
1G/2.5G LNK/ACT	**Green**	**Lights**:	To indicate the port is running at **1000Mbps or 2500Mbps** speed.
		Blinks:	To indicate that the switch is actively sending or receiving data over that port.
10G LNK/ACT	**Amber**	**Lights**:	To indicate the port is running at **10GMbps** speed and successfully established

3.3 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature: 0°C ~ 50 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

Storage:

Temperature: -10°C ~ 70 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

3.4 ELECTRICAL SPECIFICATION

Input Voltage:	100~240V AC, 50/60Hz, 4A (max.)	
Power Consumption (System on):	110V: 14.8 watts	50.4BTU
	220V: 14.5 watts	49.4BTU
Power Consumption (Ethernet PoE Full Loading):	110V: 162 watts *	552.4BTU
	220V: 158 watts *	538.7BTU

* With a total PoE power output limited at 120 watts

3.5 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

3.6 RELIABILITY

MTBF > 50,000Hrs @ 25 degrees C

3.7 BASIC PACKAGING

☑ The WS-1032P	x 1
☑ Quick Installation Guide	x 1
☑ RJ45-to-DB9 RS232 Cable	x 1
☑ Rubber Feet x 4	x 1
☑ Two Rack-mounting Brackets with Attachment Screws	x 1
☑ AC Power Cord	x 1
☑ SFP Dust-proof Caps	x 2

3.8 PACKING INFORMATION

Box Dimensions (W x D x H):	390 × 233 × 85 mm
Gross Weight:	2.19kg
Carton Dimensions (W x D x H):	530 × 409 × 260 mm
Total Weight (gross weight)**:**	13.7kg
Quantity:	6pcs in one carton