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Product Specifications

5GHz 802.11ac 900Mbps Outdoor Wireless CPE

WBS-512AC

Version 1.0

Change History:

Revision:	Date:	Author:	Change List:
Version 1.0	2020-5-11	Reyo Wu	Initial release

Author	Reyo Wu	Editor:	Reyo Wu
Approved by:	Kent Kang	Project Leader:	Kent Kang

1. PRODUCT DESCRIPTION

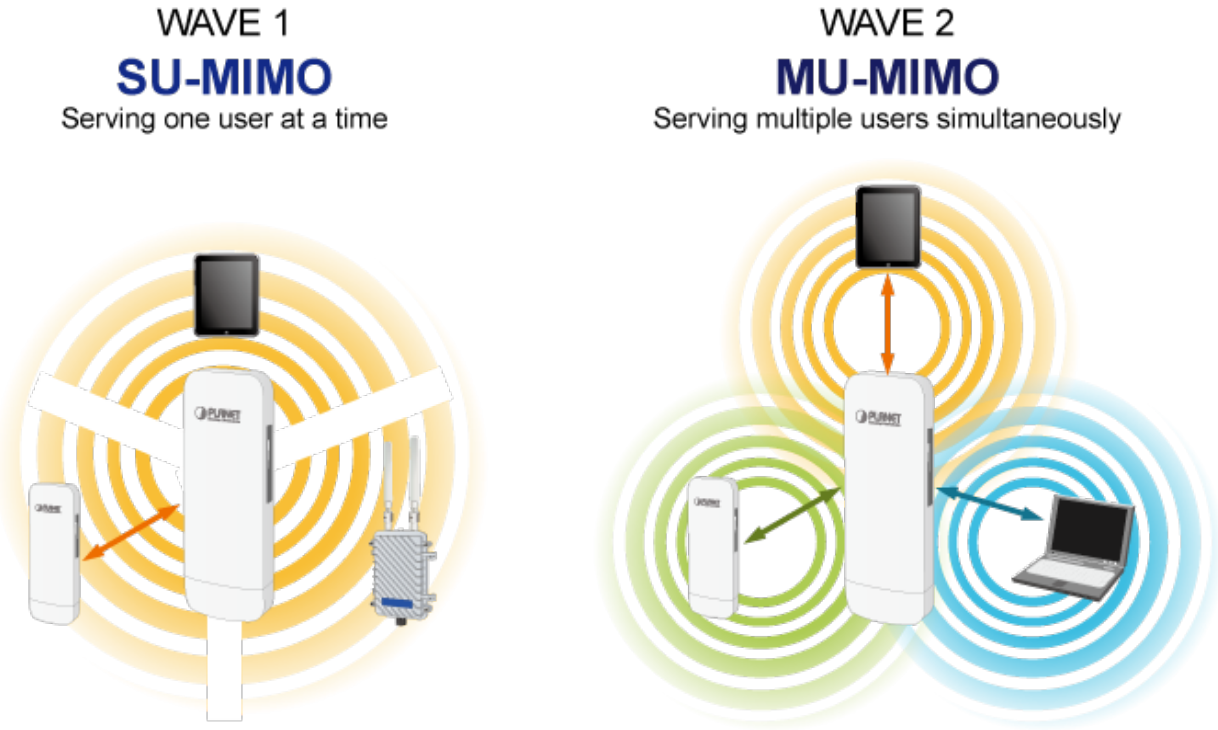
Flexible and Reliable Outdoor Wireless Solution with Superior Performance

PLANET WBS-512AC 802.11ac WAVE 2 900Mbps Outdoor Wireless CPE offers a better range and excellent throughput than those of the traditional wireless device. With the standard IEEE 802.3at Power over Ethernet (PoE) design, the WBS-502N can be easily installed in the areas where power outlets are not available. The WBS-512AC is definitely suitable for wireless IP surveillance, and bridge link of building to building and backbone of public service. Additionally, the self-healing capability keeps connection alive all the time. With the IP55-rated outdoor enclosure, the WBS-512AC can perform normally under rigorous weather conditions, meaning it can be installed in any harsh, outdoor environments.

Benefits of MU-MIMO under 802.11ac Wave 2

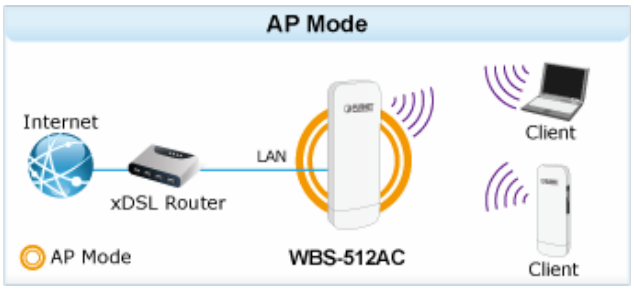
With the MU-MIMO Wave 2 technology, the WBS-512AC, installed in public areas such as hotspots, airports and conferences, reduces the frustration that Wi-Fi users often experience in downloading web pages, e-mail file attachments and media contents. For cellular operators, the WBS-512AC provides a better Wi-Fi user experience, reducing the likelihood of users turning off Wi-Fi and putting more load on the cellular network. For enterprises, this technology also can solve Wi-Fi congestion issues in open work spaces and conference

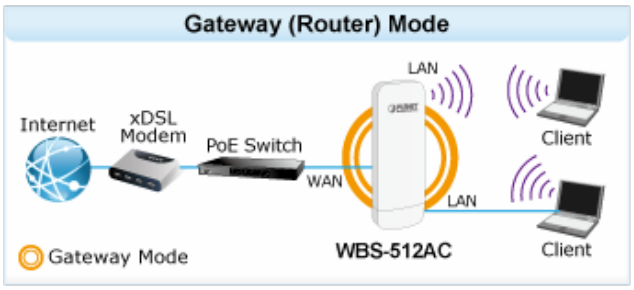
rooms.

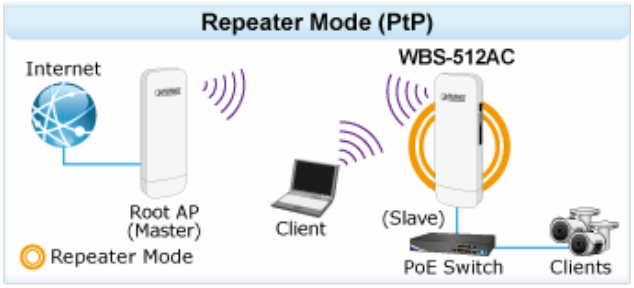


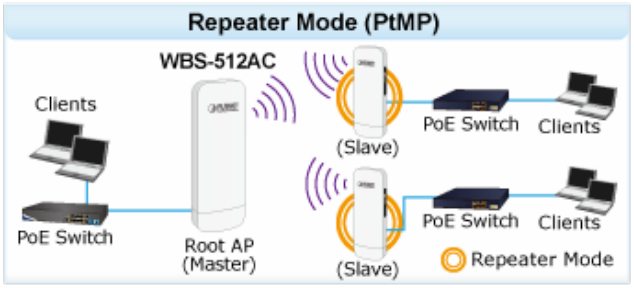
Designed for Various Requirements

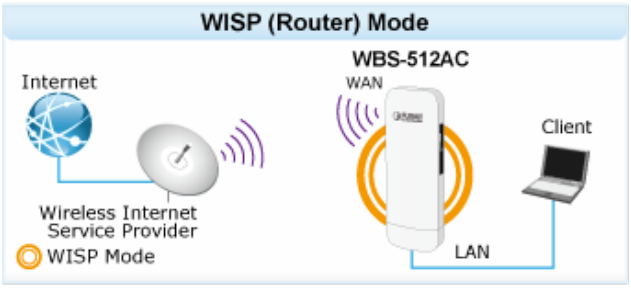
The WBS-512AC is specially designed for long-distance outdoor surveillance and wireless backhaul solutions that are capable of establishing stable bridge connection through the embedded 14dBi unidirectional antenna. To provide maximum performance, the WBS-512AC can implement up to 6 operation modes and is easy to use where a multitude of applications in communities, warehouses, campuses, harbors, etc. can be made.

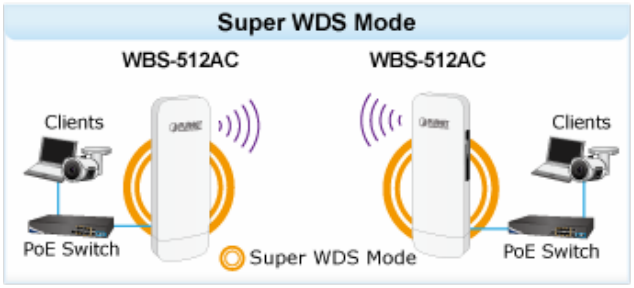










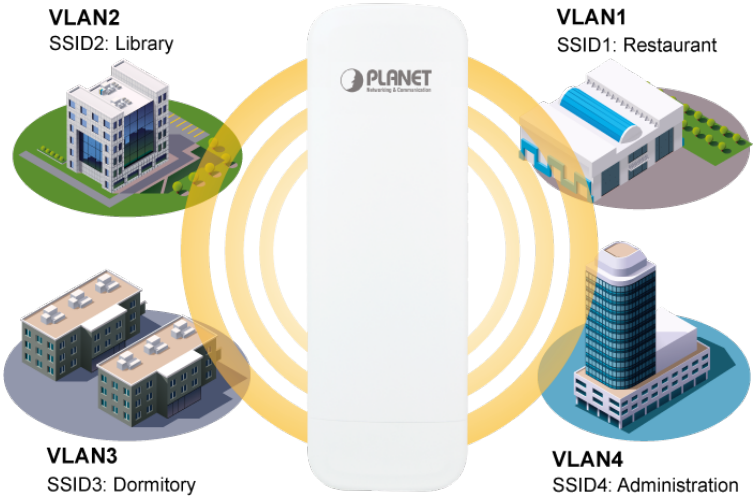


3 Simple Steps to Set Up PtP Connection

Without needing to enter the Web interface for configuration, the WBS-512AC has the DIP switch for setting to master (AP mode) and to slave (repeater mode). User only needs three simple steps to establish the PtP connection without any difficulty. By just switching the button to “Master” on the master AP, and pressing the reset button, the PtP connection can be established in 2 minutes as the connection steps are shown below.

Multiple SSIDs with VLAN Tagging

The WBS-512AC supports WPA/WPA2, and the 802.1X RADIUS authentication to secure the wireless connection. Besides, the supported IEEE 802.1Q VLAN allows multiple VLAN tags to be mapped to multiple SSIDs to distinguish the wireless access. This makes it possible for the WBS-512ACN to work with managed Ethernet switches to have VLANs assigned to a different access level and authority.



Multi-SSIDs + VLANs

Flexible and Reliable Outdoor Characteristics

The WBS-512AC is definitely suitable for wireless IP surveillance, and bridge link of building to building and backbone of public service. Additionally, the self-healing capability keeps connection alive all the time. With the IP55-rated outdoor enclosure, the WBS-512AC can perform normally under rigorous weather conditions, meaning it can be installed in any harsh, outdoor environments. With the flexible DC input or Power over Ethernet (PoE) option, the WBS-512AC can be easily installed depending on the environmental condition.

Optimized Efficiency in AP Management

The brand-new GUI configuration wizard helps the system administrator easily set up the WBS-512AC step by step. Besides, the built-in Wi-Fi analyzer provides real-time channel utilization to prevent channel overlapping to assure greater performance. With the automatic transmission power mechanism, distance control and scheduling reboot setting, the WBS-512AC is easy for the administrator to deploy and manage without on-site maintenance. Moreover, you can use PLANET NMS-500 or NMS-1000V AP control function to deliver wireless profiles to multiple APs simultaneously, thus making the central management simple.

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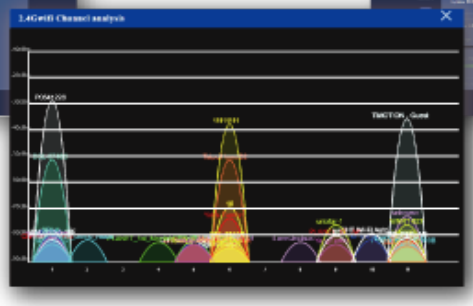
Setup Wizard Multiple Modes

Home Dashboard for Wi-Fi Status View



Wi-Fi Channel Analyzer

2. PRODUCT FEATURES

- **Industrial Compliant Wireless LAN and LAN**
  - Compliant with the IEEE 802.11a/n/ac WAVE2 MU-MIMO wireless technology
  - 2T2R architecture with data rate of up to 900Mbps
  - Equipped with two 10/100/1000Mbps RJ45 ports with auto MDI/MDI-X supported

- **Fixed Network Broadband Router**
  - Supported WAN connection types: DHCP, Static IP, PPPoE
  - Supports Port Forwarding and DMZ for various networking applications
  - Supports DHCP server in Gateway/WISP mode

- **RF Interface Characteristics**
  - Built-in 14dBi dual-polarization antenna
  - High output power with multiply-adjustable transmit power control

- **Outdoor Environmental Characteristics**
  - IP55 rating
  - IEEE 802.3at Power over Ethernet design
  - Operating temperature: -20~70 degrees C

- **Multiple Operation Modes and Wireless Features**
  - Multiple operation modes: AP, Gateway, Repeater, Super WDS, WISP
  - WMM (Wi-Fi multimedia) provides higher priority to multimedia transmitting over wireless
  - Coverage threshold to limit the weak signal of clients occupying session
  - Real-time Wi-Fi channel analysis chart and client limit control for better performance
  - Support Terminal Fast Roaming with 802.11k, 802.11v, and 802.11r

- **Secure Network Connection**
  - Full encryption supported: WPA/WPA2, WPA-PSK/WPA2-PSK and 802.1X RADIUS authentication
  - Supports 802.1Q VLAN and SSID-to-VLAN mapping
  - Supports IP/Port/MAC address/URL filtering, DoS, SPI Firewall
  - Supports DMZ and Port Forwarding
  - Bandwidth control per IP address to increase network stability

- **Easy Installation and Management**
  - 3 simple steps to establish PtP (AP + Repeater) connection easily
  - Supports PLANET NMS Controllers in AP mode

- Easy discovery by PLANET Smart Discovery
- Self-healing mechanism through system auto reboot setting
- System status monitoring through remote Syslog Server
- Supports PLANET DDNS/Easy DDNS

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

SoC	Qualcomm QCA9563+QCA9886+QCA8334
RAM	128MB DDR2
Flash	32MB

3.2 FUNCTIONAL SPECIFICATIONS

Product	**WBS-512AC** 900Mbps Outdoor Wireless CPE WAVE 2.0, MU-MIMO		
Hardware			
Standard Support	IEEE 802.11a/n/ac IEEE 802.11i IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3x flow control IEEE 802.11k, 802.11v, and 802.11r		
Dimensions (W x D x H)	87 x 38 x 260 mm		
Weight	405g		
Power Requirements	48V DC IN,0.5A, IEEE 802.3 at PoE+ or 12V DC IN, 1.0A from DC Jack		
Power Consumption (max.)	< 10W		
Interface	Wireless IEEE 802.11a/n/ac, 2T2R PoE: 1 x 10/100/1000BASE-TX, auto-MDI/MDIX, 802.3 at PoE In LAN: 1x 10/100/1000BASE-TX, auto-MDI/MDIX		
Button	Reset/Pair button, PtP Switch		
Antenna	Built-in 14dBi directional antenna with dual polarization		
	Half-power beam width	Vertical H: 70 V: 15	
		Horizontal H: 50 V: 15	
Data Rate	IEEE 802.11a: up to 54Mbps IEEE 802.11n (20MHz): up to 150Mbps IEEE 802.11n (40MHz): up to 300Mbps IEEE 802.11ac (80MHz): up to 867Mbps		
Media Access Control	CSMA/CA		
Modulation	802.11 a/n/ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)		
Frequency Band	FCC: 5.180~5.240GHz, 5.745~5.825GHz ETSI: 5.180~5.700GHz		
Operating Channels	FCC: 36, 40, 44, 48, 149, 153, 157, 161, 165 (9 channels) ETSI: 36, 40, 44, 48, 100, 104, 108, 112, 116, 132, 136, 140 (12 channels) 5GHz channel list will vary in different countries according to their regulations.		
Max. Transmit Power (dBm)	FCC: up to 25 ± 1dBm ETSI: < 20dBm (EIRP)		
Receiver Sensitivity (dBm)	**Network Mode**	**Data Rate**	**Receive Sensitivity (dBm)**
	802.11a	6Mbps	-92
		54Mbps	-75

	802.11n HT20	MCS0/MCS8	-91
		MCS7/MCS15	-72
	802.11n HT40	MCS0/MCS8	-88
		MCS7/MCS15	-70
	802.11ac VHT20	MCS0	-92
		MCS8	-70
	802.11ac VHT40	MCS0	-89
		MCS9	-65
	802.11ac VHT80	MCS0	-87
		MCS9	-61
Environment & Certification			
Operating Temperature	-20 ~ 70 degrees C		
Operating Humidity	5 ~ 90% (non-condensing)		
IP Level	IP55		
ESD Protection	± 8kV air-gap discharge ± 4kV contact discharge		
Surge Protection	± 4kV		
Regulatory	CE, RoHS		
Software			
LAN	Static IP/DHCP		
	Supports IP-MAC binding		
WAN Type (GW/WISP mode)	■ Static IP ■ Dynamic IP ■ PPPoE		
Wireless Modes	■ Access Point ■ Gateway ■ Repeater ■ Super WDS ■ WISP		
Channel Width	20MHz, 40MHz, 80MHz		
Encryption Type	64-/128-bit WEP, WPA, WPA-PSK, WPA2, WPA2-PSK, 802.1X		
Wireless Security	Enable/Disable SSID Broadcast		
	Wireless Max. 32 MAC address filtering		
	User Isolation		
Max. SSIDs	4		
Max. Wireless Clients	64 per radio (50 is suggested, depending on usage)		
Max. WDS Peers	4 (Up to 3 peers by using “One-click WDS”)		
Wireless QoS	Supports Wi-Fi Multimedia (WMM)		
Wireless Advanced	Auto Channel Selection		
	5-level Transmit Power Control (Max. (100%), Efficient (75%), Enhanced (50%), Standard (25%), Min. (12.5%))		
	Client Limit Control, Coverage Threshold		
	Wi-Fi channel analysis chart		
	Fast Roaming(IEEE 802.11k, 802.11r, 802.11v)		
Status Monitoring	Device status, wireless client List		
	PLANET Smart Discovery		

	DHCP client table
	System Log supports remote syslog server
VLAN	IEEE 802.1Q VLAN (VID: 3~4094)
	SSID-to-VLAN mapping up to 4 SSIDs
Self-healing	Supports auto reboot settings per day/hour
Management	Remote management through PLANET DDNS/Easy DDNS
	Configuration backup and restore
	Supports UPnP
	Supports IGMP Proxy
	Supports PPTP/L2TP/IPSec VPN Pass-through
	SNMP v1/v2c/v3 support, MIB I/II, Private MIB
Central Management	Applicable controllers: WAPC-500, WAPC-1000, NMS-500, NMS-1000V

3.3 PHYSICAL SPECIFICATIONS

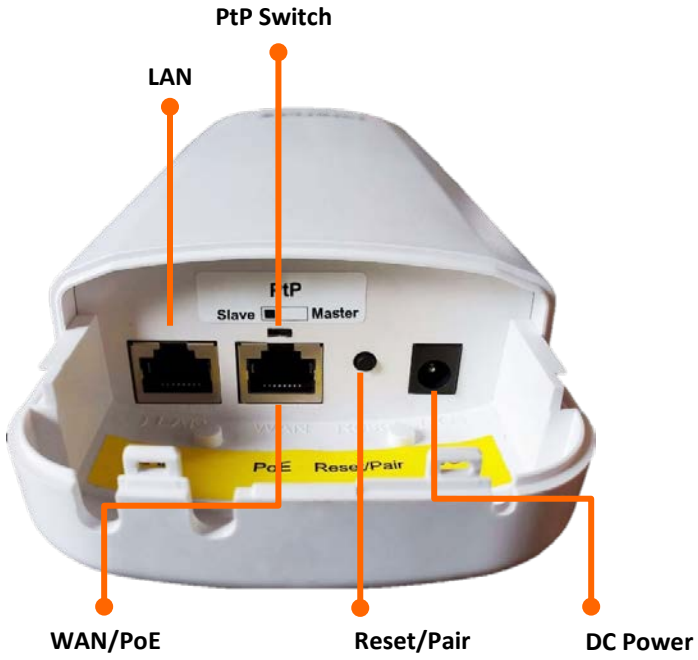
Physical Specifications	
Dimensions (W x D x H)	87 x 38 x 260mm
Weight	405g

Front Side Rear Side **RightSide**

LED Definition

LED	State	Meaning
Power	On	The device is powered on
	Off	The device is powered off
WAN Port	On	Port is linked
	Blinking	Data is transmitting or receiving data
	Off	No link
LAN Port	On	Port is linked
	Blinking	Data is transmitting or receiving data
	Off	No link
WLAN	On	The wireless radio is on
	Blinking	Data is transmitting or receiving over wireless
	Off	The wireless radio is off

Port and Button



Hardware Interface Definition

Object	Description
PoE LAN Port	10/100/1000Mbps RJ45 port, auto MDI/MDI-X
LAN Port	10/100/1000Mbps RJ45 port, auto MDI/MDI-X
PtP Switch	Position “Master” to “Slave” on the slave AP.
Reset/Pair Button	Press and hold the **Reset** button on the device for over 15 seconds to return to the factory default setting. Press the "**Pair**" button on both APs to be connected in 2 minutes.

3.4 ENVIRONMENTAL SPECIFICATIONS

Environmental Specifications	
Temperature	Operating: -20 ~ 70 degrees C Storage: -40 ~ 75 degrees C
Humidity	Operating: 10 ~ 90% (non-condensing) Storage: 5 ~ 90% (non-condensing)

3.5 Regulatory Compliance

CE, RoHS

3.6 BASIC PACKAGING

- WBS-512N
- Quick Installation Guide x 1
- Mounting Strap x 1
- Ethernet Cable x 1

3.7 PACKAGING INFORMATION

Box Dimensions (W x D x H)	332 x 106 x 95 mm
Box Weight	600 ±20g
Carton Dimensions (W x D x H)	495 x 350 x 455 mm
Carton Weight	12.5kg
Quantity	20 pcs in one carton

APPENDIX: Default Settings

System	
Device Name	WBS-512AC
Firmware Version	3.0
Connection Type (LAN IP)	Static IP
IP Address	192.168.1.253
Subnet Mask	255.255.255.0
Wireless Settings	
Operation Mode	**AP Mode**
Mode	802.11AC
Bandwidth	80MHz
SSID	PLANET_5G
Channel	5.8G: 36 (ETSI region)/ 149 (FCC region)
Wireless Advanced Settings	
RF Output Power	100%
Packet Threshold (235-2346)	2346
Beacon Interval (100-1024)ms	100
Max. Number of Users (0-64)	64
Coverage Threshold (-95~-65dBm)	-90