5GHz 802.11ac 900Mbps TDMA Outdoor Long Range Wireless CPE Kit

Stable and Reliable Long-range Outdoor Wireless Solution with Superior Performance

PLANET WBS-900AC-KIT 5GHz 802.11ac 900Mbps TDMA Outdoor Long-range Wireless CPE KIT offers a long-range and excellent throughput better than those of the traditional wireless device. **The distance from one location to another can reach up to 20km**. With the standard IEEE 802.3at Power over Ethernet (PoE) design, the WBS-900AC CPE can be easily installed in the areas where power outlets are not available. The WBS-900AC-KIT is definitely suitable for wireless long-distance city-to-city connectivity for all applications. Based on **TDMA and ATPC (Automatic Transmit Power Control)** technology, the WBS-900AC-KIT allows a number of users to share the same frequency band without interference between users by allowing them to transmit at a different time slot. With the IP65-rated outdoor enclosure, the WBS-900AC-KIT can perform normally under rigorous weather conditions, meaning it can be installed in any harsh, outdoor environments.

Benefits of TDMA and ATPC

Time-division multiple access (TDMA) is a channel access method for shared-medium networks. It allows several users to share the same frequency channel by dividing the signal into different time slots. The users transmit in rapid succession, one after the other, each using its own time slot. This allows multiple stations to share the same transmission medium while using only a part of its channel capacity. With the TDMA technology, the WBS-900-KIT reduces interference between users by allowing them to transmit at different times. It provides a better quality data transmission compared to other techniques because it reduces interference and allows for more efficient use of the available frequency spectrum. The ATPC provides automatic wireless signal adjustment in accordance with the environment, reduces mutual interference between the CPEs, and improves the stability of data transmission.

Industrial Compliant Wireless LAN and LAN
- Compliant with time-division multiple access (TDMA) wireless technology
- 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

RF Interface Characteristics
- 29dBi dual-polarization antenna
- High output power with multiply-adjustable transmit power control
- Support Automatic Transmit Power Control (ATPC)

Outdoor Environmental Characteristics
- IP65 rating; built-in TVS lightning protection
- IEEE 802.3 at Power over Ethernet design
- Operating temperature: -40~70 degrees C

Multiple Operation Modes and Wireless Features
- Multiple operation modes: AP (auto WDS), AP (TDMA), Station (WDS/TDMA) and Station (ARPNAT)
- Support ATPC function to reduce mutual interference between the CPEs
- 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 authentication
- Supports 802.1Q tagged VLAN over WDS/TDMA
- Supports MAC address filtering

Easy Installation and Management
- 3 simple steps to establish PtP (AP + Station) connection easily
- System status monitoring through remote Syslog Server

Benefits of MU-MIMO under 802.11ac Wave 2

With the MU-MIMO Wave 2 technology, the WBS-900AC, 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-900AC 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.

WAVE 1
SU-MIMO
Serving one user at a time

WAVE 2
MU-MIMO
Serving multiple users simultaneously
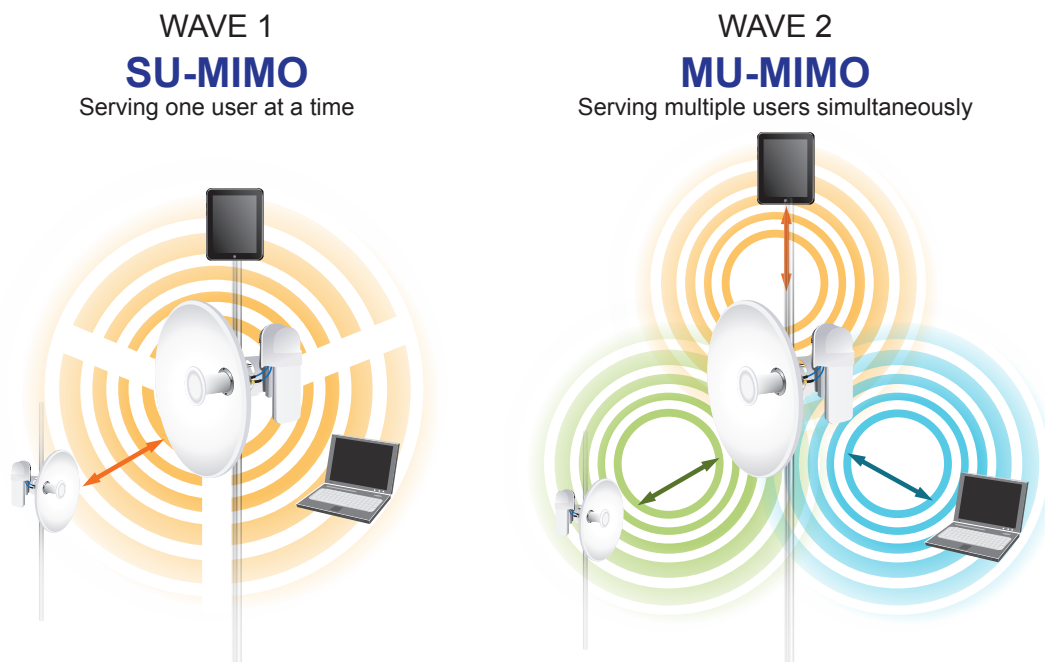
**Flexible, Durable and Reliable Outdoor Characteristics**

To reach maximum reliability in the harsh environment, the **WBS-900AC-KIT** not only comes with **IP65-rated casing**, but also adopts the Qualcomm Chipset Solution, capable of withstanding wide temperature ranging from **-40 to 70** degrees C. Designed with the **IEEE 802.3at PoE+** (**P**ower **o**ver **E**thernet) power scheme, the **WBS-900AC-KIT** can be easily installed in the areas where power outlets are not available. Furthermore, it is also suitable to be integrated with PLANET Renewable Powered PoE System to offer farther wireless service in remote areas.

Dust-proof

Water-proof

Surge-proof

Frost-proof

Overheat-proof

Environmental Adaptations in Outdoor Area

Designed for Various Requirements

The WBS-900AC-KIT is specially designed for long-distance outdoor wireless solutions that are capable of establishing stable bridge connection with 29dBi high gain dish antenna. To provide long range and maximum performance., the WBS-900AC-KIT can implement 3 operation modes and is easy to use where a multitude of applications in communities, warehouses, campuses, harbors, etc. can be made.
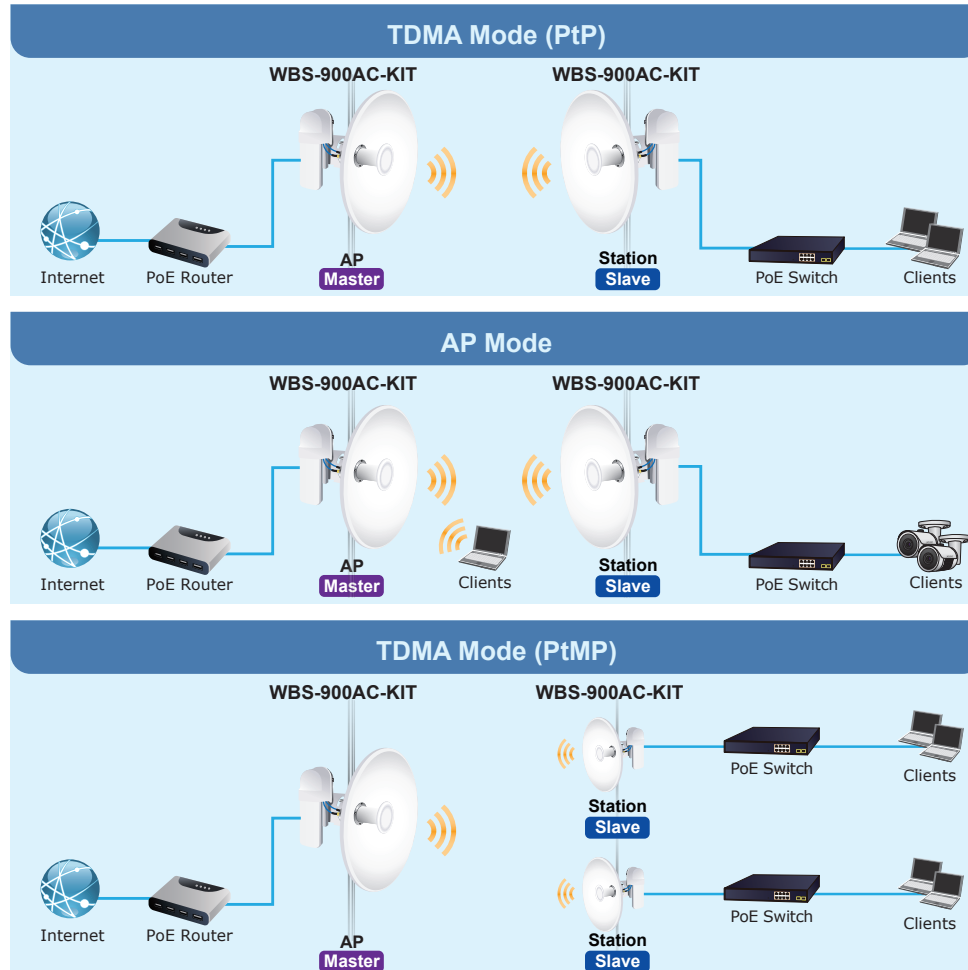
3 Simple Steps to Set Up PtP Connection

Without needing to enter the Web interface for configuration, the WBS-900AC-KIT has the DIP switch for setting to master (AP mode) and to slave (Station 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.

3 Steps to Set Up TDMA Mode (PtP) Connection

Position "Slave" to "Master" on master AP — **Step 1**

Press **Reset** button for 2 seconds and wait for 2 mins — **Step 2**

Master and Slave have been connected — **Step 3**

Applications

Long-distance Connection

PLANET WBS-900AC-KIT is specially designed for long-distance outdoor wireless bridge solutions that are capable of establishing stable bridge connection with 29dBi high gain dish antenna to provide long-range connection and maximum performance. It supports TDMA that can reduce interference between users by allowing them to transmit at different times even when a large number of users shares the same frequency band. It is easy to install and adjust the suitable setting in appropriate locations. The connection distance would be **up to 20km** and the throughput would be up to 80Mbps. In the aspect of management, the adjustable transmit power control and IEEE 802.1Q VLAN that the WBS-900AC features regulate network data transfer by delaying the flow of less important or less desired packets.

Specifications

Product	WBS-900AC-KIT	
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	
Antennas	Gain: 4 x Internal 4dBi antenna (2.4G x2, 5G x2)	
WBS-900AC CPE	Dimensions	85 x 33 x 185 mm (W x D x H)
	Weight	298 g
Antenna ANT-D29AD	Dimensions	430 x 165 x 430 mm (W x D x H)
	Weight	1165 g
Power Requirements	IEEE 802.3 at PoE+ or 12V DC IN	
Power Consumption (max.)	< 15W per device	
Interface	2x RP-SMA PoE: 1 x 10/100/1000BASE-TX, auto-MDI/MDIX, 802.3 at PoE In LAN: 1 x 10/100/1000BASE-TX, auto-MDI/MDIX	
Button	Reset/Pair button	
Switch	PtP Switch	
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	5150~5850MHz	
Operating Channels	5GHz channel: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136,140, 149, 153, 157, 161, 165 * 5GHz channel list will vary in different countries according to their regulations.	
Max. Transmit Power (dBm)	Up to 26 dBm (country dependent)	

Network Mode	Data Rate	Receive Sensitivity (dBm)
Receiver Sensitivity (dBm)		
802.11a	6Mbps	-90
	54Mbps	-70
802.11n HT20	MCS0/MCS8	-88
	MCS7/MCS15	-70
802.11n HT40	MCS0/MCS8	-86
	MCS7/MCS15	-68
802.11ac VHT20	MCS0	-89
	MCS8	-67
802.11ac VHT40	MCS0	-86
	MCS9	-62
802.11ac VHT80	MCS0	-85
	MCS9	-58

Antenna	Dual polarization dish antenna	
	Gain	29 dBi
	Frequency range	5180 -5850 MHz
	Polarization	±45°
	Cross-pol Isolation	30 dBi
	VSWR	< 1.8
	Azimuth beam width (H pol)	6°
	Azimuth beam width (V pol)	6°
	Elevation beam width	6°

Environment & Certification	
Operating Temperature	-40 ~ 70 degrees C
Operating Humidity	5 ~ 95% (non-condensing)
IP Level	IP65
ESD Protection	± 6KV
Surge Protection	± 2kV
Regulatory	CE, RoHS

Software	
LAN	Static IP/DHCP
	Supports Secondary IP
Wireless Modes	■ Access Point (auto WDS)
	■ Access Point (TDMA3)
	■ Station (WDS/TDMA3)
	■ Station (ARPNAT)
Channel Width	20MHz, 40MHz, 80MHz
Encryption Type	WPA, WPA-PSK, WPA2, WPA2-PSK
Wireless Security	Enable/Disable SSID Broadcast
	Wireless Max. 32 MAC address filtering
	User Isolation
Max. SSIDs	1
Max. Wireless Clients	128 (depending on usage)
Wireless QoS	Supports Wi-Fi Multimedia (WMM), 4 queues prioritization on TDMA
Wireless Advanced	Auto Channel Selection
	Transmit Power: 3 - 30 dBm
	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
	DHCP client table
	System Log supports remote syslog server
VLAN	IEEE 802.1Q VLAN (VID: 2~4094)
Management	Remote management through SSH/HTTP/Telnet
	Configuration backup and restore
	Supports Bonjour (mDNS), CDP/LLDP, SSDP
	Supports GRE tunnel
	SNMP v1/v2c/v3 support, MIB I/II, Private MIB

Ordering Information

WBS-900AC-KIT	5GHz 802.11ac 900Mbps TDMA Outdoor Long Range Wireless CPE Kit (IP65, 802.3af/at PoE, including 29dBi antenna)

Related Products

WBS-512AC	5GHz 802.11ac 900Mbps Outdoor Wireless CPE w/ MU-MIMO WAVE 2 (Built-in 14dBi Antenna)
WDAP-850AC	Dual Band 802.11ac 1200Mbps Wave 2 Outdoor Wireless AP (IP67, 802.3at PoE+, 4 x N-type connector)
WDAP-1800AX	Dual Band 802.11ax 1800Mbps Outdoor Wireless AP (IP67, 802.3at PoE+, 4 x N-type connector)

WBS-900AC-KIT