EnGenius

Datasheet

ENS500EXT-AC
ENS500-AC

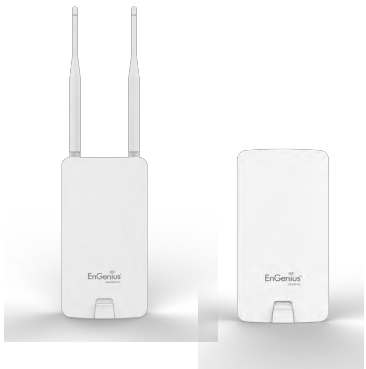
5GHz AC867 Wave2

Outdoor Long Range Wireless Customers Premise Equipment

The edge 802.11ac built-in high performance CPE with MU-MIMO technology for delivering Ultra definition content to long-range distance site.

EnGenius Wireless Long Customers Premise Equipment (CPE) solution is designed for deploying under the pervasive outdoor application. To meet today's requirement on varied networking environment, EnGenius would like to provide the solution as flexible, robust and effective as the organization they desire.

The built-in **turbo-engine quad-cores solution** is a powerful main chipset to reinforce the calculating power and handling varied wireless traffic under a pervasive environment. The state-of-the-art 802.11ac and MU-MIMO technology brings revolutionary connecting speed and bandwidth for diversity of multimedia applications. ENS500-AC and ENS500EXT-AC equip with a powerful RF interface which supports up to 867 Mbps in 5GHz frequency band to replace 11N 300Mbps solution. With robust IP55 certified casing, this access point is designed to withstand harsh environment conditions including serve and prolonged exposure to sunlight, extreme cold, frost, snow, rainfall, hail and humidity.



Features

- Engineered with Quad-Core CPU to boost 11AC Wave2 Performance ultimately
- 2x2 802.11 ac wave2/a/n Access Point with multi-user MIMO (MU-MIMO)
- Boost speed up to 867 Mbps air performance in 5GHz frequency band.
- Engine with 802.11ac Wave2 technology to enhance overall bandwidth and speed to bridge devices.
- Built-in high gain directional antenna to deliver content to the long-range distance site. (ENS500-AC)
- External antennas interface for connecting with high directional antennas to deliver signal to long-range distance. (ENS500EXT-AC)
- Compliance with Proprietary 24V PoE Input for flexible installation over 100 meters (328 feet).
- Robust housing with IP55 enclosure rated to deploy at extremely weather .
- Deliver High resolution content or multiple IP surveillance over wireless transmission
- Choose an operating mode to meet your management and deployment requirement. (AP mode/CB mode/WDS modes)

Wireless Management solution is ideal for deployment in these venues:

- Airport Terminals
- Warehouse Operations
- College Campuses
- Corporate Campuses
- Hospital Buildings
- Construction Sites
- Building Sites
- Shopping Malls
- Resort Properties
- Parks & Campgrounds
- Stadiums & Arena
- Public Lightings

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Enterprise Robust Solution

ENS500-AC and ENS500EXT-AC is easily to install anywhere and its internal electronics have been mounted in an **IP55-rated** enclosure, one of the better waterproof and dustproof rating available, designed to withstand harsh environment conditions including serve and prolonged exposure to sunlight, extreme cold, frost, snow, rainfall, hail and humidity .

Scalable and Flexible deployment for Outdoor Installation

With included mounting accessories, ENS500-AC and ENS500EXT-AC provides reliable kits to fix this device on anywhere for delivering wireless signal under outdoor environment. To save the maintenance cost and labors fee on deploying Access Points, these products had been built in two Gigabit Ethernet ports with power over Ethernet (PoE) functions for receiving power source from the included PoE adapter. With scalable extension over PoE mechanism, Access Points can receive power and signal source easily from **100 meters or 328 feet distance**.

Meanwhile, EnGenius ENS500EXT-AC also built in external SMA interfaces for users to connect with other high-gain directional antennas for delivering the wireless signal to long-range distance.

Provide Consistent Performance

Designed by EnGenius could provide the powerful RF interface to assure the reliability of signal strength and sensitivity in a pervasive environment. These optimist interfaces will provide the evenly coverage to assist users to reduce dead spots in their WLAN and boost received signal quality to deliver the best **867Mbps** air performance to wireless client devices.

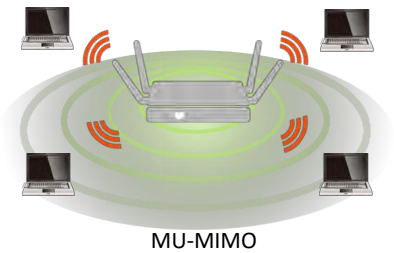
Carry multimedia content over MU-MIMO Transmit Beam-forming technology.

Be a prior AC867 solution, ENS500-AC and ENS500EXT-AC are not only built in powerful RF interfaces, but it also features advanced **Multi-Users Multiple input Multiple output (MU-MIMO)** and **Transmit beamforming (TxBF)** technologies.

The significant improvement on 802.11ac wave2 is MU-MIMO technology, which enhances a dramatic break-through in the performance and flexible transmission to wireless client devices. MU-MIMO allows multiple spatial streams to be allocated to different clients simultaneously, increasing totally throughput, reduce latency, capacity of the WLAN system and increase spectral efficiency.

Beamforming is a standard in 802.11ac wave2 which allows Access Points to focus energy of multiple antennas to transmit to a particular client device in that direction of that client. The innovative technology significantly enhances the higher signal -to-noise ratio and greater throughput of that client .

With MU-MIMO and Beamforming technology, ENS500-AC and ENS500EXT-AC outdoor long-range Access Point could bring more traffic to wireless client devices simultaneous over the longer distance and save time for serving other wireless client devices.



MU-MIMO

MU-MIMO & Beamforming

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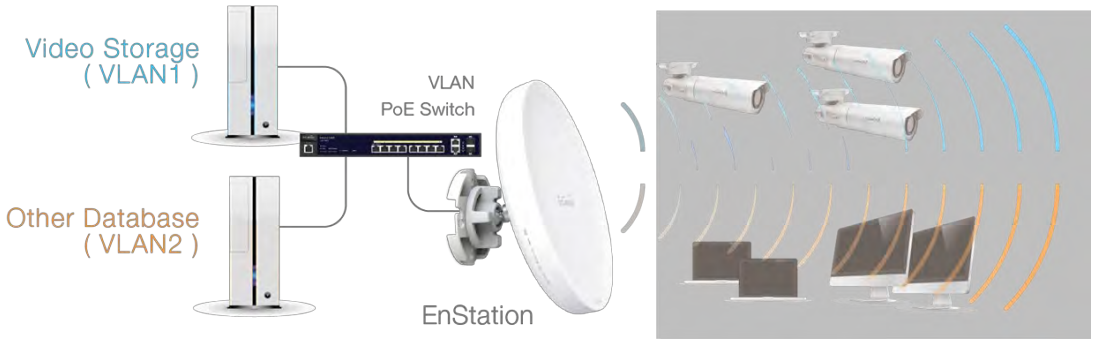
Securable Portals for different purpose

Administrators can also use **Virtual LAN (VLAN)** with **Guest Network** to isolate each client for avoiding an unnecessary touch, leaking sensitive data, and enhancing Internet security and reliability for internal network.

With **VLAN per SSID**, the Integrate VLAN ID with a WLAN service set identifier (SSID) interface will deliver packets to the defined path. The built-in QoS mechanism could allow the specific VLAN SSID to get more bandwidth and deliver video streaming content to the destination first.



Restrain Wireless Traffic under a Pervasive Environment

To effective manage the usage of each client devices at a LAN topology, **Traffic Shaping** controls the bottle of bandwidth to offer the limited bandwidth for an individual **SSID** or **each client** per Access Point. This constraint offers the constant bandwidth to perform specific applications like VOIP and video streaming fluently and smoothly without air congestion on each client devices.

Comprehensive Network Protection

With ENS Access Points, your network is protected from attacks at multiple level through advanced wireless encryption standards such as Wi-Fi Protected Access (WPA and WPA2) which uses a temporal key integrity protocol (TKIP) and authentication database, IEEE 802.1X with Radius server. EnGenius also offers the advanced encryption standard (AES) to encrypt traffic between Access Points and client devices. To isolate the internal client devices and guest devices, client isolation can avoid each client device to see each other under the same WLAN. Once threats or events are detected, built-in **E-mail Alerts** systems will automatically deliver an e-mail notification for administrators to trigger immediate actions on these networks threats.

Technical Specifications Wireless outdoor long-range Access Point

Wireless Radio Specification

Access Point Type:
Outdoor, IP55, dual radios concurrent, 5GHz 802.11 ac 2x2 MIMO is backwards compatible with 802.11 a/n mode

SU-MIMO:
Two(2) spatial stream SU-MIMO for up to 867 Mbps wireless data rate to a single wireless client device.

MU-MIMO
Two(2) spatial stream MU-MIMO for up to 867 Mbps wireless data rate to transmit to two(2) wireless client devices simultaneously.

Frequency Radios
5GHz: 5150MHz~5250MHz, 5250MHz~5350MHz, 5470~5725MHz, 5725MHz~5850MHz
Support radios and channels will be varied on the configured regulatory domain.

Supported Radio Technology
802.11ac/a/n: Orthogonal frequency-division multiplexing (OFDM)
802.11n/ac: 2x2 MIMO with 2 streams
802.11ac supports very high throughput (VHT) — VHT 20/40/80 MHz
802.11n supports high throughput (HT) — HT 20/40 MHz
802.11n/ac packet aggregation: AMPDU, ASPDU

Supported Modulation Type
802.11a/n: BPSK, QPSK, 16-QAM, 64-QAM
802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM

Transmit Power (Maximum Value)
5GHz: 23dBm
Maximum power is limited by regulatory domain

Tx Beamforming (TxBF)
Increasing signal reliability and transmitting distance.

Supported data rates (Mbps)
802.11a: 6, 9, 12, 18, 24, 36, 48, 54
802.11n: 6.5 to 300 (MCS0 to MCS15)
802.11ac: 6.5 to 867 (MCS0 to MCS9, NSS=1 to 2)

Power

Maximum Power Consumption
7.5W

Power Source
Proprietary 24V PoE (Power: 4, 5; Return: 7, 8)

Antenna

Antenna Types
ENS500-AC: High-gain directional 14dBi Antenna
ENS500EXT-AC: Two(2) detachable 5.0dBi SMA antennas
Widely frequency supported from 5150MHz to 5925MHz
Optional Solutions
Alternative solution to compatible with SA5219 sector Antennas.
(ENS500EXT-AC Only)

Interfaces

Networking Interface
Two (2) 10/100/1000 BASE-T RJ-45 Ethernet Ports
LACP
Link Aggregation achieves 2Gbps Throughput

LED Indicators
Display system and wireless transmission status

Reset Button
Convert Access Point to the Factory default or the Users Default

Mounting

Pole Mounting
Assemble a mounting bracket to fix this Access Point on a pole.

Wall Mounting
Mount this Access Point on a flat wall

Mechanical & Environment

Dimensions (Device only)
186mm (L) x 100mm (W) x 29mm (H) (7.54" x 4.49" x 1.88")

Weight
TBD

Operating
Temperature: -20°C~60°C (-4°F~140°F)
Humidity: 0% ~ 90% typical

Storage
Temperature: -40°C~80°C (-22°F~176°F)
Humidity: 0% ~ 90% typical

Environment Protection Level
IP55

Surge Protection
Line to Line: 1KV
Ling to Ground: 2KV

ESD Protection
Contact: 4KV
Air: 8KV

Compliance Regulatory

FCC
Subpart15 B
Subpart C 15.247
Subpart E 15.407

CE
EN 301 893
EN 50385
EN 60601-1-1
EN 60601-1-2
EN 55032
EN 55024

RCM
AS/NZS 4268
AS/NZS 2772.2
CISPR 22

R&TTE Directive 1995/5/EC

CB
IEC 60950-1
IEC 60950-22

S-Mark
UL 60950-1

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Technical Specifications Wireless outdoor long-range Access Point

Operating Mode

Access Point Mode (AP Mode)
Be an Access Point behaves like a central connection for station or clients that support IEEE 802.11 ac/a/b/g/n network.

Client Bridge Mode (CB Mode)
The Access Point essentially acts as a wireless adapter that connects to an access point to allow a system of wireless access to the network in the client bridge mode.

WDS Modes (WDS AP, WDS BR, WDS Station)
WDS modes uses WDS technology to establish the wireless connection via filling MAC address in both Access Points to enlarge the wireless area.

Exquisite RF Management

ACK timeout (Distance Control)
Set the ACK timeout to assure the proper distance to deliver wireless signal properly

Site Survey
Scan signal level of an environment to provide parameters for performing Auto Transmit power and auto channel.

Auto Transmit Power
Automatically adjust power level

Auto Channel
Automatically assign a clearly channel to perform RF transmission under a pervasive environment.

Fast Roaming (802.11k)
Collect the parameters of neighborhood Access Points to find the optimal AP. (ENS500EXT-AC Only)

RSSI Threshold
Kick client devices that the signal (RSSI) is above the set value from the AP for reducing the interference and optimize the connecting quality.

Optimize Performance

Quality of Service
Compliance with IEEE 802.11e standard
Prioritizes voice over data for both tagged and untagged traffic
Transmit video, voice and data at the same SSID

Power Save Mode
Support U-APSD

Pre-Authentication
Compliance with 802.11i &11x

PMK Caching
Compliance with 802.11i
If wireless client devices has authenticated to an access point, it does not perform a full authentication exchange when client devices roaming between access points.

Fast Roaming (802.11r)
Use a Fast Transition key to handover between Access Points (ENS500EXT-AC)

Multicast to Unicast Conversion
Using the IGMP protocol, an access Point delivers high definition content to a large number of clients simultaneously.

Easy to Management

Multiple SSIDs
BSSID support
Support 8 SSIDs

Guest Network
Isolate each client for avoiding an unnecessary touch, leaking sensitive data, and enhancing Internet security and reliability.

VLAN Tag
Independent VLAN setting can be enable or disable. Any packet that enters the Device without a VLAN tag will have a VLAN tag inserted with a PVID (Ethernet Port VID).

VLAN Pass-through
Broadcast VLAN-tag packets to find the destination and deliver packets over the defined path. The functions allows network topology scalable and flexible.

VLAN Per SSID
Integrate VLAN ID with a SSID interface to forward packets over the defined path. The functions isolate client devices to get more security.

Management VLAN
Feature is enabled with specified VLAN ID, the device will only allow management access with the same specified VLAN ID from remotely location by using protocols such as telnet, SSH, snmp, syslog etc.

Traffic Shaping
Controls the bottle of bandwidth to offer the limited bandwidth for an individual **SSID** or **each client** per Access Point.

MAC Address Filtering
Filter up to 32 sets MAC addresses per SSID

E-Mail Alert
Provides a network monitoring tool for administrators to stay informed the configuration change.

Save Configuration as Users Default
Save the customized configuration as default value for different customer demands.

Wi-Fi Scheduler
Perform a regular reboot on access point at assigned schedule
Perform it to enable or disable 2.4GHz or 5GHz interface from a period time.

SNMP &MIB&CLI
v1/v2c/v3 support
MIB I/II, Private MIB
CLI Supported

RADIUS Accounting
Help operators to offload 3G to Wi-Fi seamlessly

Wireless Clients list
Provide the list to display real status of wireless client devices on this Access Point.

Comprehensive Protection

Wireless Encryption Standard
WEP Encryption—64/128/152 bit
WPA/WPA2 Enterprise (WPA-EAP using TKIP or AES)

Hide SSID in beacons

Client Isolation
Block/Isolate the communication between the associated clients under the same WLAN.

HTTPS
A secure communication protocol can be enabled to allow secure management web access over a computer network.

SSH Tunnel
A secure communication protocol can be enabled to allow secure remote shell access or command execution.

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RF Performance Specification Wireless outdoor long-range Access Point

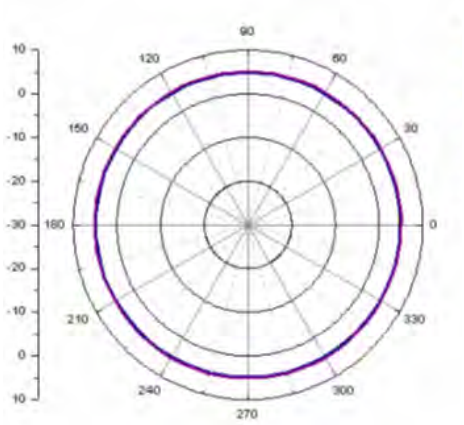
Channel	Data Rate	Transmit Power (Aggregated, dBm)	Receive Sensitivity (Aggregated, dBm)
802.11b 2.4 GHz	1 Mbps	-	-
	2 Mbps	-	-
	5.5 Mbps	-	-
	11 Mbps	-	-
802.11g 2.4 GHz	6 Mbps	-	-
	54 Mbps	-	-
802.11a 5 GHz	6 Mbps	23.0	-91.0
	54 Mbps	21.0	-76.0
802.11n HT20 2.4 GHz	MCS 0 / 8	-	-
	MCS 7 / 15	-	-
802.11n HT40 2.4 GHz	MCS 0 / 8	-	-
	MCS 7 / 15	-	-
802.11n HT20 5GHz	MCS 0 / 8	23.0	-91.0
	MCS 7 / 15	20.0	-72.0
802.11n HT40 5GHz	MCS 0 / 8	23.0	-87.0
	MCS 7 / 15	20.0	-70.0
802.11ac VHT20 5GHz	MCS0	22.0	-91.0
	MCS9	19.0	-72.0
802.11ac VHT40 5GHz	MCS0	22.0	-87.0
	MCS9	18.0	-64.0
802.11ac VHT80 5GHz	MCS0	22.0	-84.0
	MCS9	18.0	-60.0

*Maximum RF performance of the hardware provided. Maximum transmit power is limited by local regulatory.
*The supported frequency bands are restricted by local regulatory requirements.
*Transmit power is configured in 1.0dBm increments.

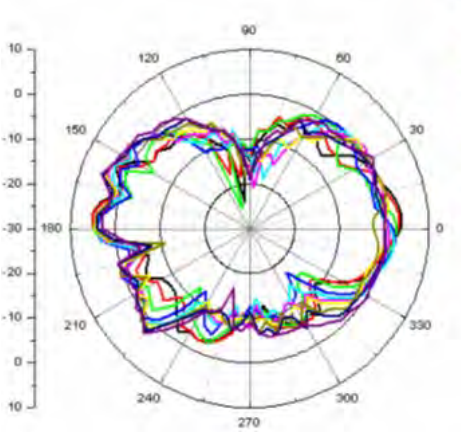
Antennas Patterns Wireless outdoor long-range Access Point

ENS500EXT-AC

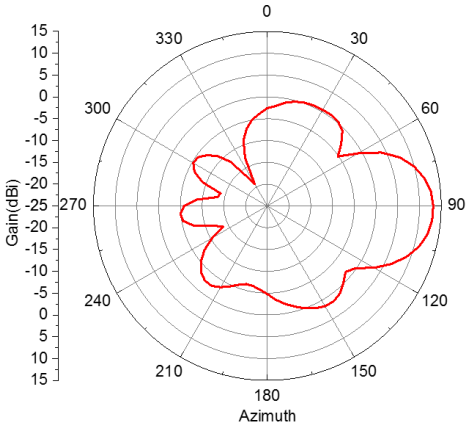
5GHz H-Plane

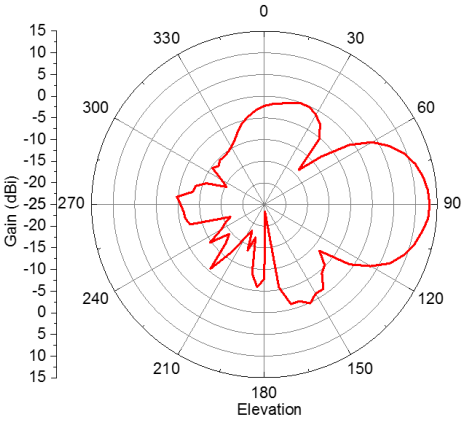


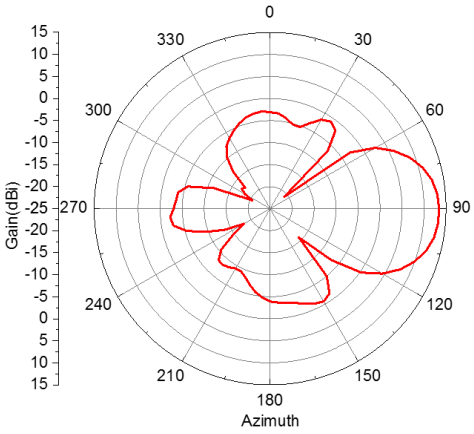
5GHz E-Plane

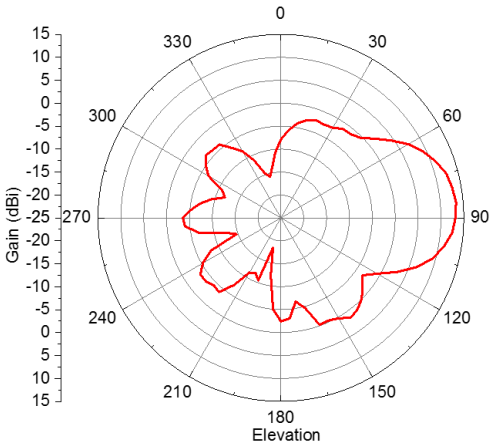


ENS500-AC









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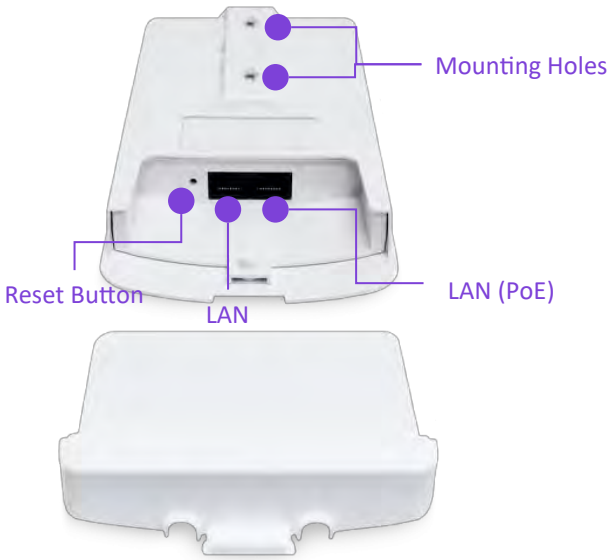
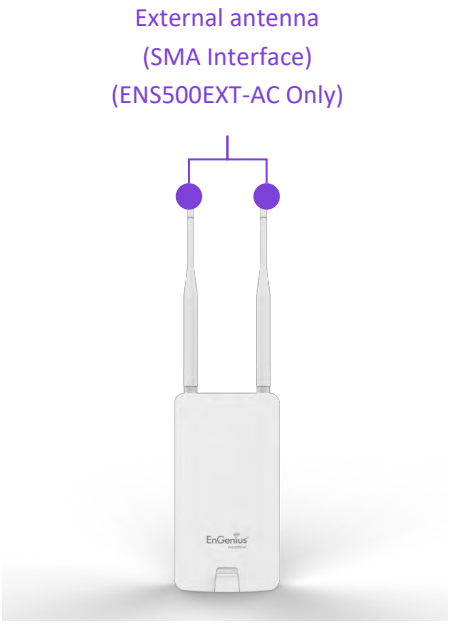
Physical Interfaces





	ENS500-AC	ENS500EXT-AC
		
Standards	802.11ac/a/n	802.11ac/a/n
Frequency	5150MHz~5850MHz	5150MHz~5850MHz
Data Rates	867 Mbps	867 Mbps
Antennas	Directional 14dBi	External SMA 5dBi
Physical Interface	2 x Gigabit LAN	2 x Gigabit LAN
Radio Chains/Streams	2x2: 2	2x2: 2

* The supported frequency and maximum Tx power will be varied by the local regulatory.

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