

VISUALIZE  
Your Network



EnGenius®  
Product Booklet

# About Us

Established in 1979, EnGenius is an industry expert in wireless communications and radio frequency (RF) technology for businesses, service providers, and consumers. Our mission is to deliver best-in-class voice and data solutions that enhance productivity and embrace simplicity. We believe connectivity should come with a promise of reliability, rich features and personalized service while maintaining affordability.

EnGenius was officially listed on the TWSE (TAIEX: 3558) and launched its IPO in 2013. The company continuously invests in R&D to maintain its competitive advantage and provide innovative network solutions. Additionally, all EnGenius products are 100% made in Taiwan and ISO 9001 and ISO14001 certified, ensuring delivery of high-quality products to the market. Five global branch offices are located in the United States, Canada, Netherlands, Singapore and Dubai, offering prompt service and regional technical support.

EnGenius' comprehensive product line includes PoE controller switches, indoor and outdoor wireless networking products, surveillance and wireless mesh networks for both consumer and business class market. As a world-leading network provider, EnGenius is globally recognized through such awards as the Taiwan Excellence Awards, Red Dot Design Award, and Computex d&i awards. With deep experience in the networking industry, we help millions of customers worldwide successfully deploy state-of-the-art wireless solutions for a wide range of applications and market sectors, including hospitality, government, transportation and education.



Global Offices



Years Reliability



Manufactured  
in Taiwan



In-house Engineers

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# The First 2x2 11ax Access Point in The Industry

The Next Generation Wi-Fi with greater capacity, higher efficiency and improved performance



## 4x Increased Capacity

with wireless speed up to 2,400Mbps in 5GHz band and 1,148Mbps in 2.4GHz

### 4X

#### BETTER in Dense Environments

Increase 4x average throughput per device in dense deployment



#### FASTER Throughput

Deliver up to 40% higher peak data rates for a single client device



#### STRONGER Security

by WPA2 and WPA3



#### EXTEND the Battery Life

of client devices

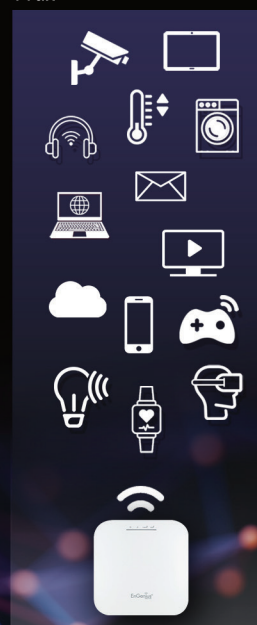
11a/b/g/n



11ac



11ax



## Low Latency, Higher Efficiency

Deliver the right resources at a time to a diverse set of devices with differing needs

# OFDMA





# EnSky Solution

Versatile On-Premise Central Management Solution

## EnSky

Versatile On-premises  
Central Managed Solutions

An innovative total solution with a rich product portfolio comprising indoor and outdoor wireless devices, managed Ethernet switches, and on-premises management tools, SkyKey hardware and ezMaster software.

### Management Skykey Controller



### Hardware APs & Switches



### Management ezMaster Software



## Remote Access for Multiple EnSky Networks via SkyKey I Controller and EnSky Managed Gigabit PoE+ Network Switches



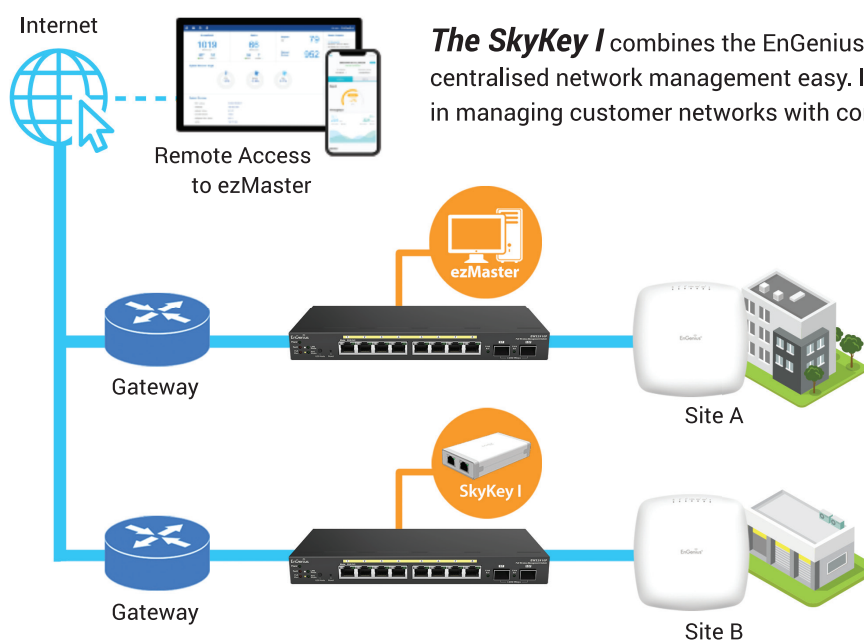
Topology View



Remote reboot APs  
when the unit hangs or show offline on  
SkyKey I



Remote PoE management  
and monitoring


















# EnSky Solution

Versatile On-Premise Central Management Solution



## PoE Switches

							
	EWS7952FP	EWS1200-28TFP	EWS7928P	EWS7926EFP	EWS5912FP	EWS2910P	EWS2908P
Supported EWS AP	50	50	50	50	50	50	50
10/100/1000 Base-T	48	24	24	24	10	8	8
Total PoE Budget	740W	410W	185W	410W	130W	55W	55W
PoE Capable Port	1- 48	1- 24	1- 24	1- 24	1- 8	1- 8	1- 8
PoE Standard	802.3af/at	802.3af/at	802.3af/at	802.3af/at	802.3af/at	802.3af	802.3af
Form Factor	19"1U	19"1U	19"1U	19"1U	13"1U	Desktop	Desktop
SFP Ports	4	4	4	10Gx2	2	2	-
Auto Uplink Gigabit Ports	-	-	-	-	•	-	-
RJ45 Console Port	1	1	1	1	1	-	-
Annual License Free Per AP	\$0	\$0	\$0	\$0	\$0	\$0	\$0



## Indoor Access Point

	11ax (Wi-Fi6)		Tri-Band	Wireless AC Wave 2		Wireless AC
						
	EWS377AP	EWS357AP	EWS385AP	EWS355AP	EWS330AP	EWS360AP
Standards	802.11ax/ac/a/b/g/n	802.11ax/ac/a/b/g/n	802.11ac (wave 2) / a / b / g / n	802.11ac/a/b/g/n	802.11ac/a/b/g/n	802.11ac/a/b/g/n
Frequency	2.4 & 5GHz	2.4 & 5GHz	2.4 & 5GHz	2.4 & 5GHz	2.4 & 5GHz	2.4 & 5GHz
2.4 GHz Max. Data Rate	1148Mbps	574Mbps	400Mbps	400Mbps	400Mbps	450Mbps
5 GHz Max. Data Rate	2400Mbps	1200Mbps	867+867Mbps	867Mbps	867Mbps	1299Mbps
Radio Chains / Streams	4x4:4	2x2:2	2x2:2	2x2:2	2x2:2	3x3:3
Ethernet Ports	1x 2.5Gigabit Port	1x Gigabit Port	1x Port (PoE+) 1x Gigabit Port	1 x Gigabit Port	1 x Gigabit Port	1 x Gigabit Port
PoE Compliant	802.3at	802.3af	802.3af	802.3af	802.3af	802.3at
Antenna	8 x Internal	4 x Internal	6 x Internal	4 x Internal	4 x Internal	6 x Internal
MESH	MESH	MESH	MESH	MESH	MESH	MESH

## Indoor Access Point

	Wall Plate AP	
		
	EWS550AP	EWS511AP
Standards	802.11ac/a/b/g/n	802.11ac/a/b/g/n
Frequency	2.4 & 5GHz	2.4 & 5GHz
2.4 GHz Max. Data Rate	400 Mbps	300 Mbps
5 GHz Max. Data Rate	867 Mbps	433 Mbps
Radio Chains / Streams	2x2 : 2	2x2:2(2.4GHz), 1x1:1(5GHz)
Ethernet Ports	1 x 10/100/1000 Mbps Uplink Port 3 x 10/100/1000 Mbps Access Port (with 1 x PoE Out) 2 x RJ45 Pass Through Port 2 x 110 Punch Down Block	2 x 100Mbps LAN Port
PoE Compliant	802.3at	802.3af
RJ45 Pass-through	•	N/A
Antenna	4 x Internal	2 x Internal
MESH	MESH	N/A

## Outdoor Access Point

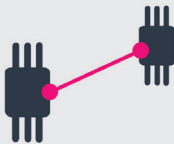
	Wireless AC	
		
	EWS860AP	EWS660AP
Standards	802.11a/b/g/n/ac	802.11a/b/g/n/ac
Frequency	2.4 & 5 GHz	2.4 & 5 GHz
2.4 GHz Max. Data Rate	450 Mbps	450 Mbps
5 GHz Max. Data Rate	1300Mbps	1300Mbps
Radio Chains / Streams	3x3:3	3x3:3
IP Rating	IP68	IP55
Primary Ethernet Ports	1 x Gigabit Port	1 x Gigabit Port
Secondary Ethernet Port	1 x Gigabit Port (PoE Output)	1 x Gigabit Port
PoE Compliant	802.3at	802.3at
Antennas	6 x External (N-type)	6 x Internal
MESH	MESH	MESH

# ezMaster

Network Management from Anywhere



Choose the Best Options  
to **Manage Your Network**



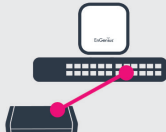
**Standalone Mode**

For quick single location deployment



**Controller Switch**

For small scale single location management



**SkyKey Controller**

For small scale single location management



**ezMaster with Local Server**

For remote management to multiple deployment



**ezMaster with Amazon Web Service**

For remote management to multiple deployment

**Suggested No. APs**

<5APs

<50APs

<100APs

≤5,000APs

≥10,000APs

**Project Size**

SOHO Deployment

Small scale single deployment

Small scale single deployment

Town, states, Nation wide

Town, states, country, global

**Benefit**

One Time Setup

Multi-grouping

Multi-grouping

Multi-project handling

Multi-tenancy

**Target Customers**

Large Houses, Shops, Café

Budget Hotel, Office, Wired Campus

Budget Hotel, Office, Wired Campus

Large campuses, Multi-network deployment, chain stores

City-wide Hotspot, International Hubs, chain offices

## SkyKey

SkyKey Controller

### Max. 100 Devices (AP+Switch)

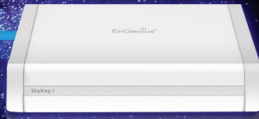
- MCU: IPQ4019
- DDRIII: 1GB
- eMMC: 4GB
- 2 x 10/100/1000 Ethernet Port (802.3af PoE)
- 1 x Micro SD Slot
- 1 x DC-Jack
- ezMaster Built-in



On-site Deployment  
Supports up to

**100** devices

**SkyKey I**



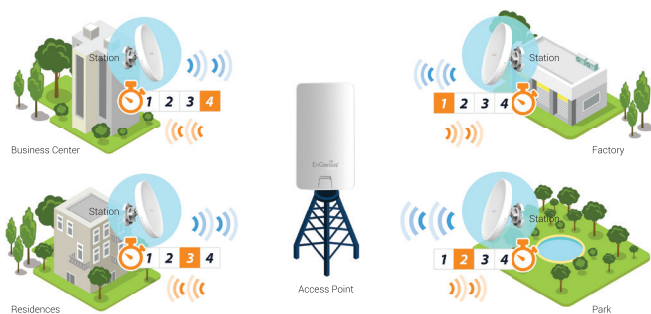
# Achieve Maximum Throughput for Outdoor Wi-Fi Deployment

New generation of outdoor wireless solution, built in EnGenius EnJet technology, which is based on proprietary technology, allows each client to send and receive data using **pre-designated time slots** scheduled by EnJet protocol, which can **eliminate hidden node collisions** and **maximize airtime efficiency**. The data transmission between AP and clients can have **noise immunity** to prevent latency and have better throughput and scalability.

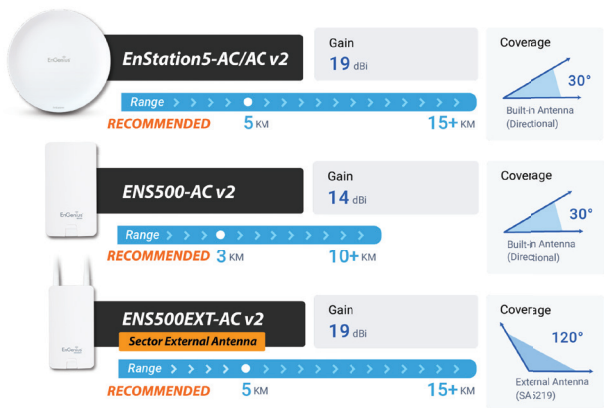
EnGenius outdoor APs/CPEs built in EnJet technology, is specifically designed and engineered to network over great distance and to transfer heavy data at consistence wireless speeds in **point-to-point** or **point-to-multi-points deployments**. The Intelligent QoS Priority is given to voice/video for seamless streaming.

## EnGenius EnJet Technology Overview

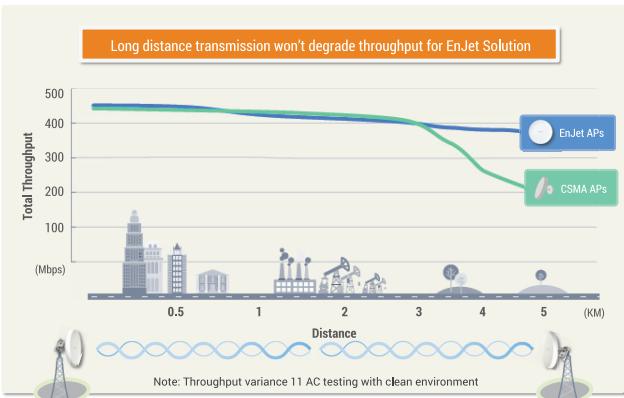
Proprietary technology (TDMA-based) makes outdoor wireless transmission more efficient. Time-slot based transmission to avoid collision for better throughput



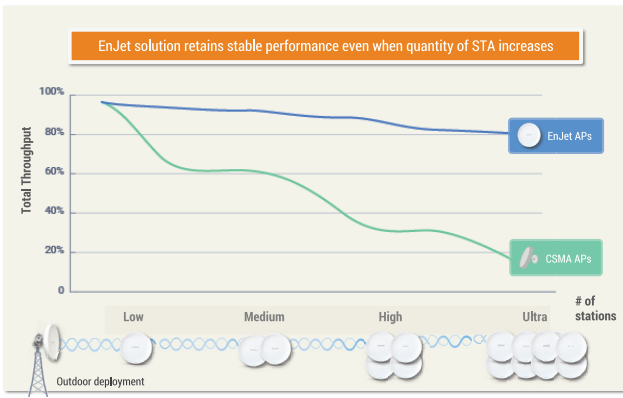
## EnJet Based Access Point Portfolio



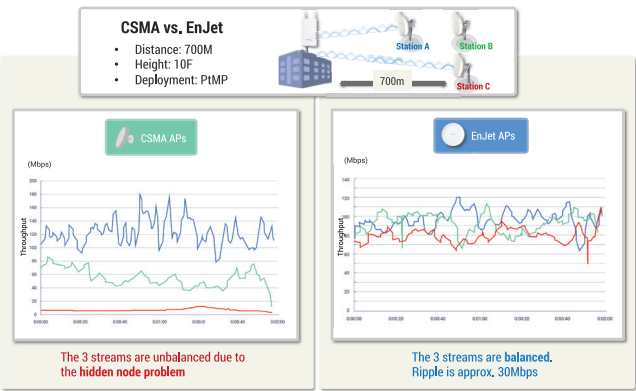
Retain **maximum throughput** for outdoor deployments



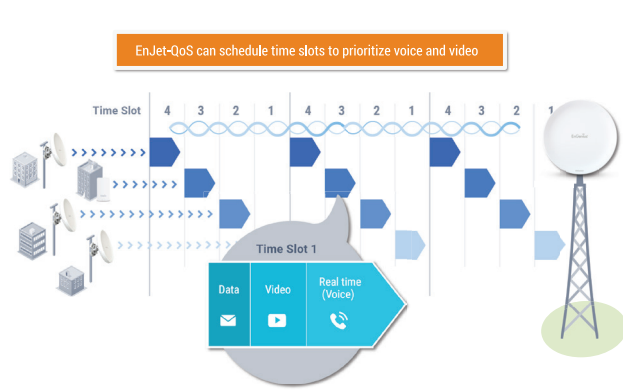
Keep throughput **consistently high** while # of stations increase



Individual station throughput **remains stable** for PtMP



Advanced QoS promotes **low latency** for specific applications





# EnWiFi APP

Ideal deployment when initializing Wireless Access Points



EnGenius EnWiFi is a simple Wi-Fi management and configuration platform that is developed for EnGenius outdoor and indoor WiFi devices. Users can easily configure their devices on-site and monitor the installed or deployed devices on their smart phones or tablets.

The EnWifi APP facilitate the set-up of a single or a group of WiFi devices from a single interface and provides real-time connection status. Simple diagnostic and site-survey tools allows installers to make deployment adjust on-site and also help future easy maintenance.






## Overview:

- Configuring AP via mobile smart devices.
- Managing a single device or a group of devices
- Easy selection of different operating modes
- Real-time monitoring on status of on-site wireless devices
- Backup of configuration files
- Easy firmware upgrade of on-site wireless devices









# Access Points




## Outdoor Access Point

					
	<b>ENS500EXT-ACv2</b>	<b>ENS500-ACv2</b>	<b>ENH500v3</b>	<b>EnStation5-ACv2</b>	<b>EnStationACv2</b>
Standards	802.11a/n/ac Wave2	802.11a/n/ac Wave2	802.11a/n/ac Wave2	802.11a/n/ac Wave2	802.11a/n/ac Wave2
Frequency	5GHz	5GHz	5GHz	5GHz	5GHz
2.4 GHz Max. Data Rate	-	-	-	-	-
5 GHz Max. Data Rate	867Mbps	867Mbps	867Mbps	867Mbps	867Mbps
LAN	10/100/1000 x2	10/100/1000 x2	10/100/1000 x2	10/100/1000 x2	10/100/1000 x2
IP Rating	IP55	IP55	IP65	IP55	IP55
Antenna	RP-SMA 2x 5dBi Omni	Internal Panel 14dBi Dual Polarization	Internal Panel 16dBi Dual Polarization	Internal Panel 19dBi Dual Polarization	Internal Panel 19dBi Dual Polarization
Operation Modes	AP/CB/WDS-AP/BR/ST	AP/CB/WDS-AP/BR/ST	AP/CB/WDS-AP/BR/ST	AP/CB/WDS-AP/BR/ST	AP/CB/WDS-AP/BR/ST
EnJet Technology	YES	YES	YES	YES	YES
ezWiFi Planner	YES	YES	YES	YES	YES
EnWiFi APP	YES	YES	YES	YES	YES
ezMaster	YES	YES	YES	YES	YES

## Outdoor Access Point

						
	<b>EnStation5</b>	<b>ENS202EXTv2</b>	<b>ENS202v2</b>	<b>ENH1350EXT</b>	<b>ENS620EXT</b>	<b>ENS610EXT</b>
Standards	802.11a/n	802.11b/g/n	802.11b/g/n	802.11ac/a/b/g/n	802.11ac/a/b/g/n	802.11ac/a/b/g/n
Frequency	5GHz	2.4GHz	2.4GHz	2..4&5GHz	2.4&5GHz	2.4&5GHz
2.4 GHz Max. Data Rate	-	300Mbps	300Mbps	400Mbps	400Mbps	400Mbps
5 GHz Max. Data Rate	300Mbps	-	-	867Mbps	867Mbps	867Mbps
LAN	10/100 x2	10/100 x2	10/100 x2	10/100/1000 x1	10/100/1000 x1	10/100/1000 x1
IP Rating	IP55	IP55	IP55	IP67	IP55	IP55
Antenna	Internal Panel 19dBi Dual Polarization	2x External (SMA Type)	Internal Panel 8dBi Dual Polarization	4x External (SMA Type)	4x External (SMA Type)	4x External (SMA Type)
Operation Modes	AP/CB/CR/WDS-AP/BR/ST	AP/CB/WDS/Repeater	AP/CB/WDS/Repeater	AP/CB/Mesh/WDS	AP/CB/WDS	AP/CB/WDS
PoE Standard	24V	24V	24V	48V	24V	24V
ezWiFi Planner	YES	YES	YES	YES	YES	YES
EnWiFi APP	-	-	-	-	-	-
ezMaster	-	YES	-	YES	YES	YES
Mesh	-	-	-	YES	-	-

## Indoor Access Point





			
	<b>EAP1300EXT</b>	<b>EAP1300-Kit</b>	<b>EAP1250-Kit</b>
Standards	802.11ac Wave2	802.11ac Wave2	802.11ac Wave2
Frequency	2.4&5GHz	2.4&5GHz	2.4&5GHz
2.4 GHz Max. Data Rate	400Mbps	400Mbps	400Mbps
5 GHz Max. Data Rate	867Mbps	867Mbps	867Mbps
Ethernet Port	1 x Gigabit LAN	1 x Gigabit LAN	1 x Gigabit LAN
PoE Compliant	802.3af	802.3af	802.3af
Antenna	4 External Antenna	4 Internal Antenna	4 Internal Antenna
PoE Adapter	-	EPA5006GP	EPA5006GP
ezWiFi Planner	YES	YES	YES
EnWiFi APP	-	-	-
ezMaster	YES	YES	YES
Mesh	-	-	YES

Legend:  
RE --- Repeater  
WDS-AP --- WDS Access Point  
WDS-BR --- WDS Bridge

WDS-ST --- WDS Station  
AP --- Access Point  
CB --- Client Bridge  
CR --- Client Router

# Accessories







## ■ Antenna

				
	SA5315	SA5219	SA2312	SA2216
Frequency	4.9~6GHz	4.9~6GHz	2.3~2.7GHz	2.3~2.7GHz
Antenna Gain	15dBi	19dBi	12dBi	16dBi
Polarisation	V-H-H	Dual	V-V-H	Dual
Vertical Angle	9°	9°	9°	9°
Horizontal Angle	120° (6dB)	120° (6dB)	120° (6dB)	120° (6dB)
VSWR	2:1 MAX	2:1 MAX	2:1 MAX	2:1 MAX
Isolation	25dB	25dB	25dB	25dB
Antenna Connector	3° N-Type Plus	2° N-Type Plus	3° N-Type Plus	2° N-Type Plus
Dimensions	740x150X66mm	740x150X66mm	740x150X66mm	740x150X66mm
Mounting	Universal Pole Mount	Universal Pole Mount	Universal Pole Mount	Universal Pole Mount
Wind resistance	200km/h	200km/h	200km/h	200km/h

# PoE Adapter

## ■ IEEE standard

## ■ Proprietary

						
	EPA5006GAT	EPA5012GP	EPA5006GP	EPA2406GP	EPA2410GP	EPA2406FP
PoE System	IEEE802.3at	54V Proprietary	54V Proprietary	24V Proprietary	24V Proprietary	24V Proprietary
Max Output Power	30W	60W	32.6W	14.4W	24W	14.4W
Powered LAN	1*10/100/1000	1*10/100/1000	1*10/100/1000	1*10/100/1000	1*10/100/1000	1*10/100

# Surge Arrestor

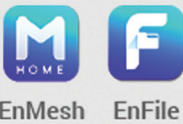
		
	ESA7600G	ESA7500
Ethernet Cable Support	10/100/1000 Base-T Cat 5/6	10/100/1000 Base-T Cat 5/6
Lightning Protection	6kV	2kV



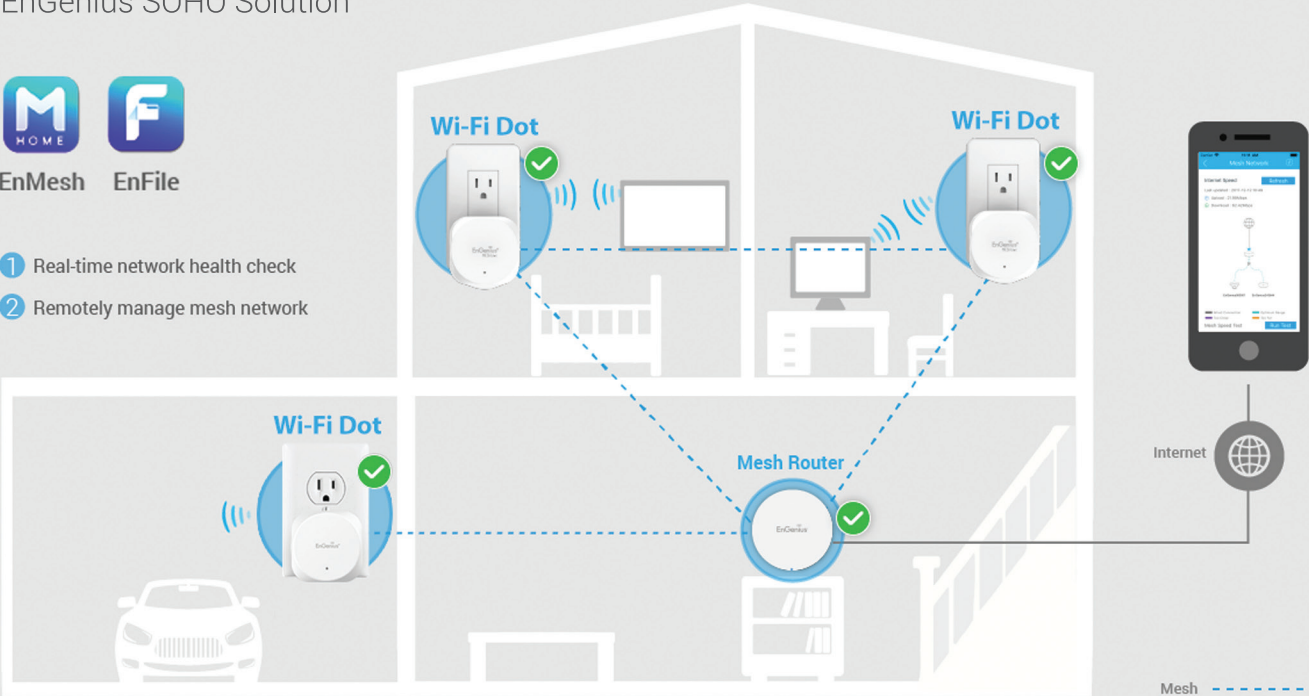
# Home Mesh Wi-Fi

Your Whole Home Mesh Wi-Fi

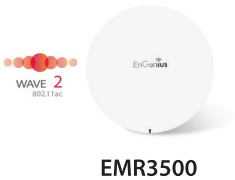
## EnGenius SOHO Solution



- 1 Real-time network health check
- 2 Remotely manage mesh network



### Mesh Router



### Wi-Fi Dot



	EMR3500	EMR5000	EMD1
Wi-Fi Standard	802.11b/g/n/ac Wave2	802.11b/g/n/ac Wave2	802.11b/g/n/ac Wave2
2.4GHz	•	•	•
5GHz	•	•	•
Data Rates	400 + 867Mbps	400 + 867 + 867Mbps	400 + 867Mbps
USB Personal Cloud	YES	YES	-
Antenna	Internal Omni Antenna 2x 6dBi, 2x 4dBi	Internal Omni Antenna 4x 6dBi, 2x 5dBi, 2x5dBi	Internal Omni Antenna 2x 2dBi, 2x 5dBi
Device Interface	1xWAN; 1xLAN	1xWAN; 1xLAN	1x10/100/1000
Primary Application	SOHO Mesh Router	SOHO Mesh Router	Mesh AP
Dimensions	127x57.2mm	127x57.2mm	62.5x62.5x52.7mm

Deployment Guide

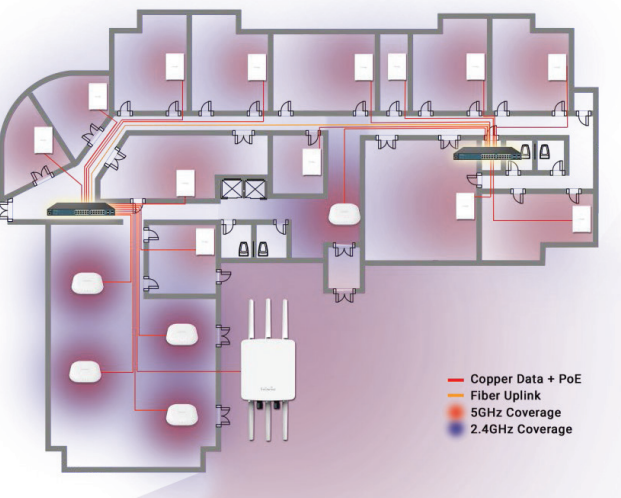
# Small School Deployment

Intro

Schools are the breeding place of our future population. We like to create an inspirational and stimulating environment for the students to develop themselves. Full access to, and usage of, updated communication technology is required to give space for creativity, and open the window to the new world.

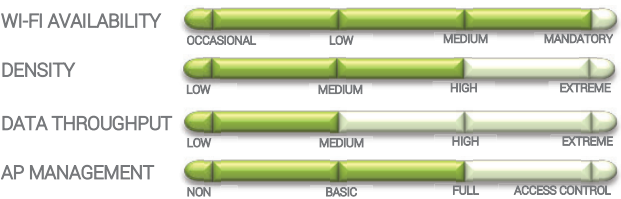
Situation

In this example we are describing the first floor of a small school with a central space, and a small quantity of class or staff rooms. Construction of the building is modern, with average indoor walls with low wireless penetration possibility. Classrooms could contain 30+ students with one or two Wi-Fi devices and some peripheral wired clients including Digi-Board and VoIP Telephone.



Requirement

Fulfil high-end wireless and wired solution to all students and staff in school for their notebook / tablet is required. Decent wireless connection is a must.



Solution

Omni-directional Neutron managed devices as endpoint access points are advised. Use EWS550AP in the class/staff rooms for both wireless and wired connectivity. Use EWS360AP for general areas where only wireless is required. Additionally one Outdoor AP is planned to provide wireless coverage outside. For maximum throughput and Management capability, the AP's are wired to the end. Backbone is based on EWS PoE switches, where one switch will function as Neutron AP controller.

In this case mainly EWS550AP are selected because of the 11ac and dual band capabilities of the product, to have two radios available to accept multiple users plus additional wired connection availability. 11ac is preferred to secure the lifespan of the solution. Strategic placement, careful channel selection and fine tuning of

the radio transmission power are needed to create a stable and balanced network environment.

In general lower power is advised to try to isolate the wireless coverage in one classroom. With background scanning enabled, the EnGenius Neutron solution can do the optimization of the network continuously, with auto power and auto channel select functions. Also Fast Roaming function will improve the wireless stability. With one EWS management switch, 50 AP's can be managed. For larger scale of network, using this setup in combination with FREE ezMaster software is recommended.

When needed, the Neutron Managed solution can seamlessly work together with Access control and or authentication servers for more advanced controlling of the clients.

Device	Model	Radio	Operation Mode	Remarks
AP 1-5	EWS360AP	2.4GHz 5GHz	Managed Access Point Managed Access Point	Use Band steering, Traffic shaping, client limitation
AP 6-18	EWS550AP	2.4GHz 5GHz	Managed Access Point Managed Access Point	LAN ports available for stationary PC, Dig-board Network Printer, VoIP phones etc.
AP19	EWS860AP	2.4GHz 5GHz	Managed Access Point Managed Access Point For Outdoor	Use Band steering, Traffic shaping, client limitation
SW1	EWS1200-28TFP		Controller + Power Source Equipment	Use fiber to connect to sub switch
SW2	EWS1200-28TFP		Power Source Equipment	Controller disabled

Result

With Neutron Managed solution you have central and easy management of the network. One time investment and no additional license fees apply. This deployment is easily scalable and or extendable were you only need to pay for the additional hardware. You can extend the same setup in multiple floors or add a few outdoor access points for the school's courtyard. In simple setup only the Neutron controller switch is needed to have a Managed wireless network. When needed, MIS can enter the EWS switch for monitoring and configuration of the network. Optionally you can also use ezMaster software.

Remarks

Currently 11ac is growing rapidly since more and more clients are using this new standard. In general it is recommended to use Dual Band wave2 11ac access points to be future proof on your deployment.

Alternative Setup

Instead of using 11ac access points, also 11AC Wave2 access points can be used. It is not recommended to use single band access points in the classrooms, since you will have less concurrent user capability.

This solution is a basic example how to use EnGenius access points in a school situation. EnGenius can offer you a wireless solution in any deployment.

Deployment Characteristics:

- < 50AP's
- < 500 users
- Good coverage and throughput
- Network Separation
- Multiple SSID
- Redirect to School Radius Server
- Full Network management
- All-in-one PoE Controller switch
- Scalable
- License Free Network Management & Wi-Fi Planning Tools

# Large School Wireless Upgrade

## Intro

The usage of mobile devices (tablets, laptops, etc.) continues to rapidly grow and have cemented their place as the new essential technology tool for the education space since the early 2000s. "82% of educators use technology in the classroom at least once a week and 38% say inadequate network infrastructure is one of the greatest challenges to providing access to education technology for their students." - The State of Education Technology 2015. Education Drive.

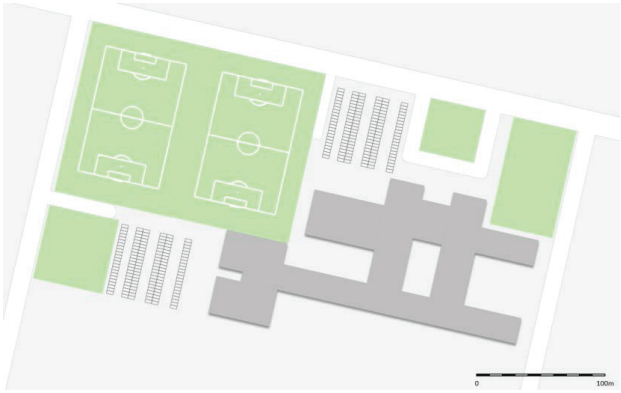
More schools are implementing and/or upgrading their wireless infrastructure in order to cater to the increasing demand of concurrent users, data throughput and to stay up to date with the latest technology. In today's society, a stable wireless connection is not just an additional feature, but a necessity to be able to stay connected with the rest of the world.

## Situation

In the following example we examine the deployment of a school located in London with an existing wired and wireless infrastructure based on older technology. Over the course of the years, the capacity does not meet the current demand. The school is home to approximately 2000 students with a premise of roughly eighty thousand square meters (almost 20 acres).



It consists of a collection of buildings and has multiple outdoor areas where wireless connectivity is required.

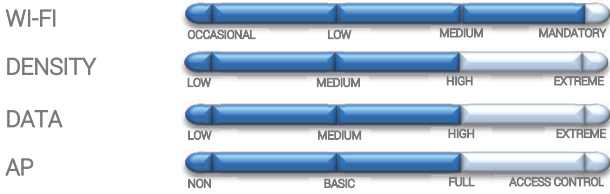


This particular school was looking for a system that could replace the wireless devices while still leveraging the existing wired network.



## Requirement

Upgrading the technology, the quantity of concurrent users and the increase of individual throughput of the clients were requirements that needed to be taken into consideration upon upgrading the network infrastructure. Much more classrooms require continuous wireless network access, higher throughput because of richer media and more client connections due to the increased usage of multiple mobile devices. In this school the access control was pretty straightforward and no complicated services were required to cater this. Additionally, the installer required a wireless system that was easy to setup, configure and maintain – even remotely without complicated software and/or protocols.



## Opportunity

The EnGenius Managed Solution featuring the ezMaster is a managed wireless network solution based on managed wireless access and the free ezmaster network management controller software. The solution offers a closed AP management system, both is open to work coexistent as a part of a total deployment. This offers the opportunity to let the solution connect to an existing wired infrastructure. The EnGenius Managed Solution includes the EWS360AP's, 3x3 MiMo 11ac indoor ceiling mount access points and also the EWS660AP's, 3x3 MiMo outdoor omni directional access points. The combination of both models fit exactly the requirement of indoor and outdoor deployment required by this school.

Up to 1,000 AP's can be managed by one installation the EnGenius ezMaster either on site or even remotely, which gives even more flexibility to for the deployment of the solution.

## Solution

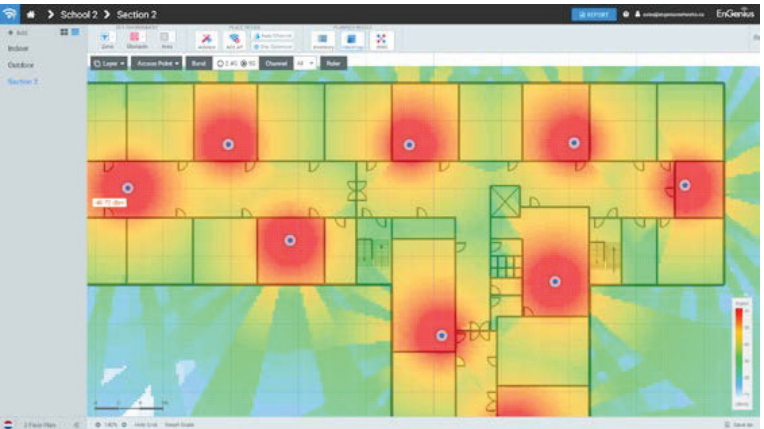
Multiple vendors including high-end education specialists were contacted to offer a solution for this deployment. Ultimately, the choice came back in favor of the EnGenius Managed Solution featuring the ezMaster. The key arguments for EnGenius was the



great Price-Performance ratio as well as the balanced feature list without having to pay for unnecessary enterprise features that would not be used in this deployment. Similarly, the simple installation and intuitive configuration of the system was a very important determining factor. Furthermore, the license free management model for a non-profit organization such as a school is also very attractive. Finally, the scalability of the solution is a feature which offers opportunities for future extensions.

Roll-out

Predesign, planning and rolling out of the deployment was done in collaboration with a system integrator using the The ezWIFI Planner is a free wireless predesign tool available on the EnGenius Partner portal, (<https://partners.engenius-tech.com.sg/>) that helps to design your wireless deployment. In the end, 80 pcs of EWS360AP indoor AP's and 4 EWS660AP outdoor AP's were installed to provide wireless coverage in all the required places in and outside of the school. The system was backhauled by the existing wireless network which was still able to be re-used.



The system was set up and is managed through having installed ezMaster on a dedicated PC in the school. The school MIS is able to monitor and maintain the wireless deployment.

Device	Model	Radio	Operation Mode	Remarks
AP 1-80	EWS360AP	2.4GHz 5GHz	Managed Access Point Managed Access Point	Use Band steering, Traffic shaping, client limitation
AP 81-84	EWS660AP	2.4GHz 5GHz	Managed Access Point Managed Access Point For Outdoor	Use Band steering, Traffic shaping, client limitation
ezM	EnGenius ezMaster		Controller	FREE Software

Result

The EnGenius Managed Solution gave the opportunity to re- use the existing wired network. Thus, the investment was placed on the wireless coverage.

The solution provides the required features at an affordable price level

- Easy installation and setup
- Concise analytics
- Superior signal coverage and signal strength
- Up-to-date firmware update
- No license fees
- Upscaling options

With the EnGenius Managed solution you have central and easy management of the network. A one-time investment and no additional license fees apply. This deployment is easily scalable and/or extendable and only requires pay for additional hardware. Both students and staff benefit from enjoying high speed wireless connectivity based on the latest technology in their daily curriculums. Together with EnGenius the deployment was successfully upgraded to today's standard and will be able meet the wireless networking requirements for many years to come.

Deployment Characteristics:

- < 1000AP's
- < 2000 users
- Good coverage and throughput
- Network Separation
- Multiple SSID
- Full Network management
- Software controller
- Connected on existing infrastructure
- Scalable
- License Free Network Management & Wi-Fi Planning Tools

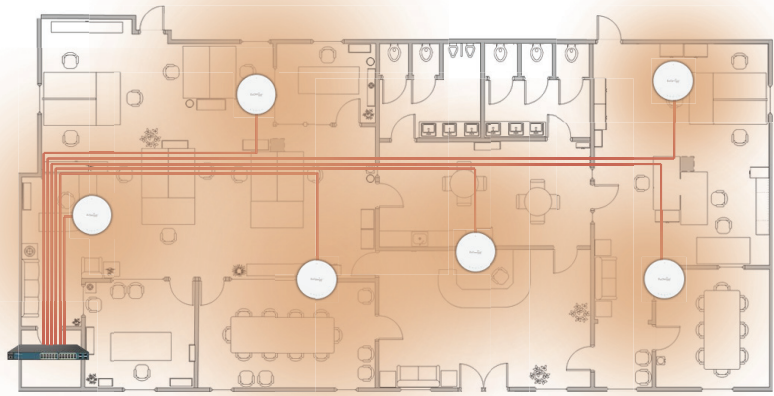
# Smart Wi-Fi Solution for Small Office

## Intro

Offices are spaces where people are working at a desk. Mostly they work with PC's and they highly depend on reliable and secure connection with the data network. Nowadays a big part of users prefer to be connected wirelessly with their office PC and also with their company and or private mobile device. Currently we see that 802.11n dual band Wi-Fi, is already a minimum requirement, and 11ac and even 11ac wave 2 is preferable to ensure the investments are future proof.

## Situation & Requirement

In this example we are highlighting a small office situation with less than 100 employees, one floor of a modern building with common indoor walls with low wireless penetration. Data throughput is average for office users, but mandatory for continuous workflow. Staff has limited movement to break-out- and meeting rooms. Sometimes guest will enter the office and require basic internet access, preferably separated from office data traffic. Discrete placement of ceiling mount Access Points is preferable and it would be also nice if these devices would be powered by PoE for easy installation



cater Wi-Fi for up to 40 users per radio within a radius of about 30 meter in case of line of sight.

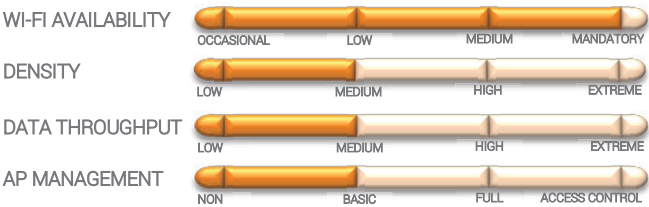
In this office definition we can assume that and EAP1300 would be able penetrate one indoor wall. Since EAP1300 access points are Wave 2 devices, they are very energy efficient and only require 802.3af PoE power supply. This results in a lower total power budget requirement when calculating the required PoE switches.

### Results

With Neutron Managed solution you have central and easy management of the network. One time investment and no additional license fees apply. This deployment is easily scalable and or extendable were you only need to pay for the additional hardware.

## Requirement

Fulfil high-end wireless and wired solution to all students and staff in school for their notebook / tablet is required. Decent wireless connection is a must.



Device	Model	Operation Mode	Remarks
AP 1-6	EAP1300	Managed Access Point	Use Band steering, Traffic shaping, client limitation
SW1	EWS7928P	Controller + Power Source Equipment	

In this scenario the phrase "you need a switch anyway" can be applied. This will confirm the choice of using a wireless management switch. There is no need for a dedicated controller server – everything is managed by the stable and reliable wireless management module in the switch. When needed, MIS or external company can enter the EWS switch for monitoring and configuration of the network, even remotely. You can shape and optimize the loading within the network. You have the possibility to make separate SSID's and even a guest network for guests, to keep them away from your office data.

This solution is a basic example how to use EnGenius access points in a basic managed environment. EnGenius can offer you a wireless solution in any deployment.

## Solution

EnGenius supplies the Neutron Management solution with full EWS managed access points and Management PoE switches. EnGenius also provides the Wave2 AC Access Points with basic Neutron Management capability. Since feature requirement in this deployment is not so complicated, the indoor devices would be an excellent choice to deploy in this situation.

We can use the Neutron Management switches as controller and/or PoE switch to be the wired backbone of the network, and use the EnGenius Indoor devices as Managed Access points. A nice specification is 11ac Wave 2 access points, which is the latest common standard for Wi-Fi and can fulfill the future proof requirement of the investment. We can choose from a few different models of indoor access points; EAP1300 and EAP1300EXT. These are both ceiling mount access points with either internal or external antennas. In this standard office environment we would recommend EAP1300.

Depending on the size and build of the office, we can advise the required access points and switches. EAP1300 ceiling mounts can

### Deployment Characteristics:

- < 50AP's
- < 100 users
- Good coverage
- Network Separation
- Multiple SSID + Guest Network
- Basic Network management
- All-in-one PoE Controller switch
- License Free Network Management & Wi-Fi Planning Tools



## Offices

### ▪ Singapore

EnGenius Networks Singapore Pte Ltd  
[www.engeniustech.com.sg](http://www.engeniustech.com.sg)

### ▪ Dubai, UAE

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