



# Neutron Series powered by ezMaster™

## Wireless Network Management Solution

Today's networks must be as flexible, robust and effective as the organizations they serve. Often they comprise different buildings, business units, infrastructures, sizes and topologies. These distributed networks can place an enormous burden on in-house IT personnel or managed service providers seeking to install, configure, provision, manage, monitor and upgrade a potentially vast collection of Switches and Access Points.

Fortunately, EnGenius has the answer: the **Neutron Series powered by ezMaster**.

The ezMaster Network Management Software, together with Neutron WLAN Controller Switches and Managed Access Points (APs), are a fully integrated solution offering breakthrough centralized network management with enterprise-class features, at an incredibly affordable price point— **with no licensing or subscription fees**.

The EnGenius Neutron Series offers indoor and outdoor Access Points and 8-, 24- and 48- port Switches powered by ezMaster



## Distributed Network Management

### Features and Benefits

- > Enterprise-class Performance
- > Deploy ezMaster via **Cloud-Based\* Service** or on a **Remote** or **Local** Server
- > Highly Scalable, from **1 to 1,000+** Access Points & Switches
- > Modular Designed, **Feature-Rich Hardware**
  - High Performance, Long-Range Indoor/Outdoor APs
  - 8, 24 & 48-Port PoE WLAN Controller Switches
- > **Simplified, Time Saving** Installation & Management
  - Up to 10,000 Users
  - Centralized, At-A-Glance Network Dashboard
  - One-Click Batch Configurations & Upgrades
  - One-View System Monitoring
- > **Rich Reporting & Analytics**
- > Built-In Network & Device Security
- > Real-Time Roaming Feature
- > Effortless Band Steering
- > Comprehensive Pre/Post Sales & Customer Service Support
- > **Lower Total Cost of Ownership (TCO)** & the Most Comprehensive Price-Performance Ratio in the Industry with:
  - **NO** AP Licensing Fees
  - **NO** Annual Subscription Fees
  - **NO** Technical Support Fees
  - Affordable Hardware

### The Neutron Series powered by ezMaster is ideal for deploying into:

- > Managed Service Providers (MSPs)
- > The Public Sector
- > School Districts
- > Large, Geographically Diverse Organizations
- > Healthcare Facilities
- > Hotels & Resorts

\*Feature available Q4 2015

## The EnGenius® Neutron™ Series powered by ezMaster™ includes:



ezMaster Network Management Software



Neutron Managed Indoor and Outdoor APs



Neutron WLAN Controller Switches

### Simplified WLAN Management with ezMaster

Whether you want to manage a few or 1,000+ APs and Switches on networks in different locations with different sizes and infrastructures—or 10 to 10,000 concurrent users, the EnGenius ezMaster Network Management Software makes it easy. How? Through centralized bulk configuration, provisioning and monitoring, a comprehensive at-a-glance network dashboard, rich analytics and reporting, and much more.

Deployed on a local or remote server—or in the Cloud, ezMaster lowers total operating costs by speeding deployment, configuration and monitoring of an entire network with minimal IT assistance.

### Broad Portfolio of Managed Access Points

EnGenius offers one of the widest-ranging Access Point portfolios available. The Neutron Series' broad portfolio of managed indoor and outdoor APs range from affordable, Single-Band 11n to high-performance 3x3 Dual-Band 11ac models all with Power-over-Ethernet (PoE) convenience.

Neutron APs include sleek, low profile indoor ceiling-mount APs and wall plate AP/Switches that provide an all-in-one communications hub for hotel guest rooms, and multi-tenant dwellings to powerful, slim line, IP-rated outdoor and industrial ruggedized APs that extend the network long-range. Neutron Managed APs are sure to meet a variety of applications and needs for both large and small networks alike.

### Wireless AP Management

These high-performance, yet affordable APs can be deployed either as a standalone device (Fat AP), centrally managed via ezMaster Software or locally managed with a WLAN Controller Switch.

### WLAN Controller Switches

EnGenius Neutron WLAN Controller Switches can deliver up to 30 watts per port to power devices like APs, IP cameras, and VoIP (Voice-over-IP) phone systems. They offer Power-over-Ethernet (PoE) support for installations in hard-to-reach places, as well as SFP slots for longer fiber uplinks.

Available in 8-, 24- and 48-port models, each Neutron WLAN Controller Switch can also act as a wireless network controller, for up to 50 Neutron APs, giving IT administrators visibility into all Neutron APs.

With **SmartSync Redundancy\***, if the connection to your ezMaster server is lost due to loss of Internet connection, Neutron Series Switches will automatically store logs and statistics from the APs. Then, when the connection is re-established, all information will be re-synched to ezMaster with no loss of the statistics or reports.

\*Feature available Q4 2015

## The Neutron™ Series powered by ezMaster™ delivers breakthrough features and benefits including:

### Unlimited Flexibility and Scalability

With the EnGenius ezMaster Network Management Software, 1 to 1,000+ APs and Switches can be quickly auto-discovered and provisioned. Once your APs are connected to the ezMaster server, they are automatically synced to existing project groups, saving you significant time and trouble. One-click individual or bulk configurations and upgrades save even more time.

What's more, EnGenius Neutron WLAN Controller Switches, Managed APs and the ezMaster Network Management Software are designed with an open architecture, ensuring they will work right with any third-party products already in your network, making it easier for your network to grow as your business does.

### Background Scanning

Constantly monitor the RF environment with ezMaster's Background Scanning feature, which provides automatic control of the Access Point's transmit power and channel allocation to ensure optimal RF coverage.

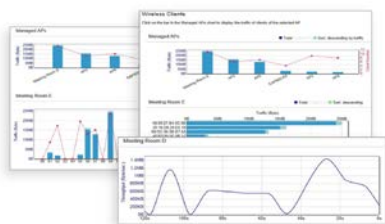
### Email Alerts

IT Managers can subscribe to and receive Email notifications from ezMaster for various notable network events including Access Point or network outages.

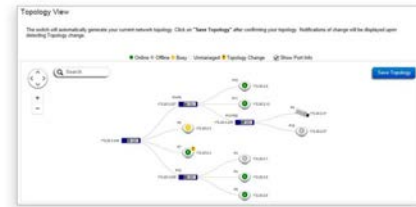
### Rich Reporting and Analytics

The EnGenius ezMaster Network Management Software is unparalleled in its ability to provide centralized network visibility in areas such as traffic flow, demand, network topology and more.

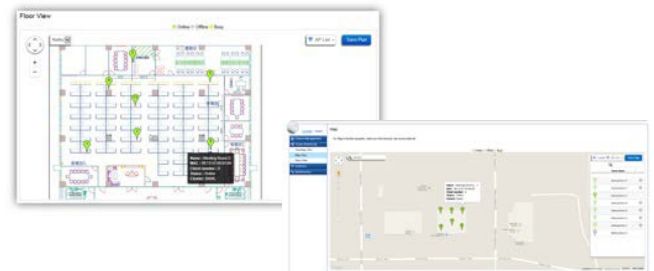
> **Statistics View** provides real-time and historical visibility of traffic flow.



> **Topology View** automatically maps network deployment and displays device relationships.



> **Floor View** allows administrators to upload floor plans and drop AP markers for a visual representative of any network on the system. With Google® **Map View** quickly locate deployed APs, a useful feature for multi-site, large-scale AP deployments.



> **Wireless Coverage Display** can be toggled in Floor Plan to indicate the coverage range of each EWS Access Point so IT managers can easily and accurately plan and deploy wireless networks in any indoor environment.



ezMaster also provides a wealth of intuitive reports showing a multitude of network metrics so that both IT and executive management can instantly see system efficiencies and issues, along with opportunities for improvements and expansion.

### Easy Installation, Ease of Use

Neutron Managed Indoor and Outdoor APs are Power-over-Ethernet enabled (PoE), making them ideal for locations where cabling and trenching are impractical. In addition, ezMaster Network Management Software has Auto AP Discover and provisioning features. No more manual work finding and provisioning Access Points.

## Lower Capital Expenditures, Operating Expenses and Total Cost of Ownership

Many competing central network management solutions require Access Point licensing fees, plus an annual subscription fee in order to install necessary upgrades. Not with the Neutron Series powered by ezMaster. The solution does not require you to pay extra for licensing, software, special features or tech support. You'll enjoy affordable, predictable costs—and a lower total cost of ownership.

## Perfect Flexibility for Managed Service Providers

If you're a managed service provider (MSP) the EnGenius Neutron Series powered by ezMaster is ideal for you. It lets you easily provision, configure, manage and update networks for all of your customers—from a single console and login, regardless of the network size, location, infrastructure, scale and ISP. You'll save a tremendous amount of time, travel and costs.

## Comprehensive Network & Device Security

Security is on the mind of every IT professional. But rest assured that with the Neutron Series, attacks on the network can be detected quickly, and network hacks avoided, through rogue AP detection, email alerts and real-time wireless invasion monitoring. Also, add the capability of working with a backend authentication database such as a RADIUS server.

## Captive Portal for Corporate-Branded, Regulated Internet Access

Organizations that offer Internet access to patrons or visitors—notably hotels, coffee shops, retail stores and airports—will appreciate the captive portal capabilities on the Neutron Series, which allows them to capture and regulate Web usage.

Captive Portal supports both an internal and external authentication database, along with customizable splash pages that can be "skinned" with corporate branding elements.

## Real-Time Roaming

With real-time roaming, employees or visitors can be connected to the network wherever they are on the property. This could include warehouse workers scanning barcode information, executives walking to and from meetings, healthcare professionals capturing patient information on a laptop, or security staff who need uninterrupted video surveillance on their mobile device while en route to an incident.

## EnGenius Neutron Series Features

- > Managed Gigabit PoE+ Capabilities
- > Auto AP Discover and Provisioning
- > Wired/Wireless Network Management & Reporting
- > Background Scanning
- > 802.11k/r Fast Roaming
- > Client Fingerprinting
- > Comprehensive Security
- > Rogue AP Detection
- > Floor Plan and Map Views
- > Email Alert
- > Captive Portal
- > Configure AP Managed VLAN
- > Dynamic Channel Selection
- > Auto Tx Power
- > One-Click Firmware Upgrade
- > Wireless Coverage Display
- > Kick/Ban Clients
- > Controller Event Log
- > AP LED On/Off
- > IP Cam Topology
- > Seamless Migration
- > SmartSync Redundancy\*

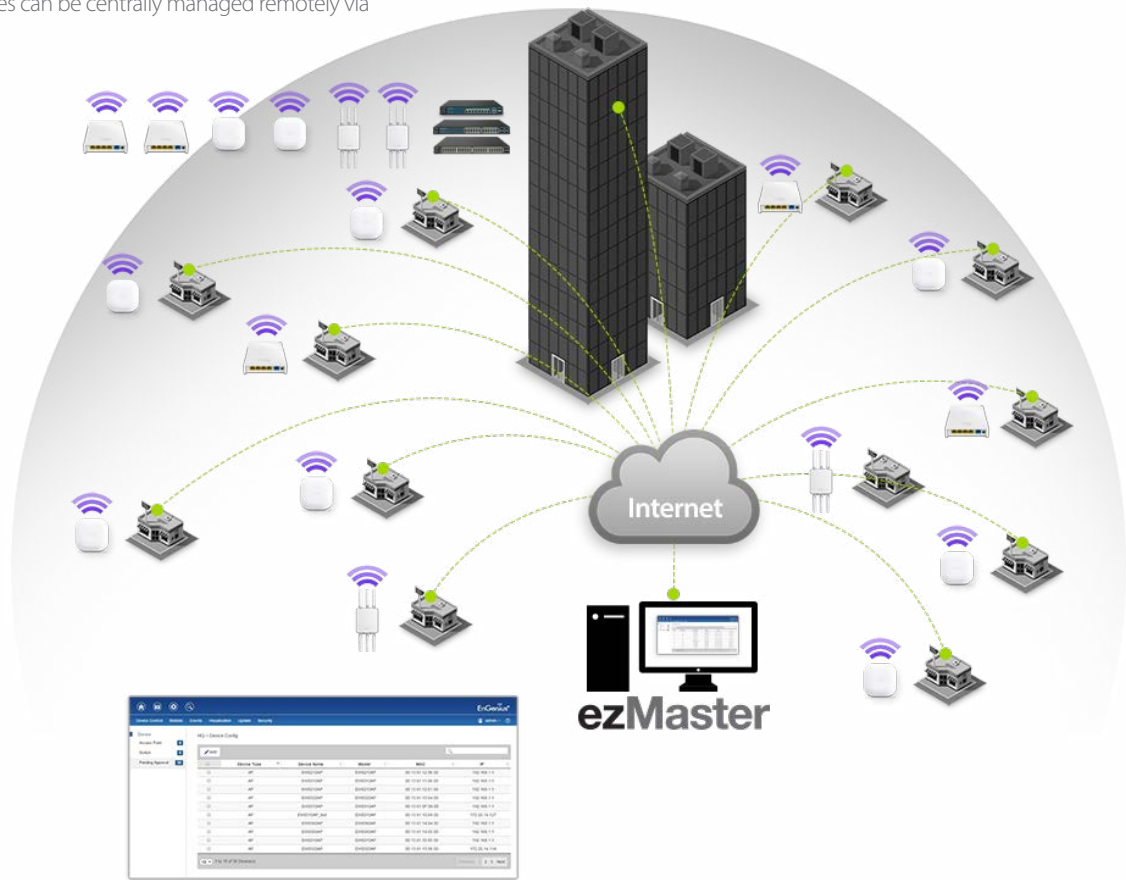
## Effortless Band Steering

When wireless networks experience excessive traffic, users may be inconvenienced by slower file transfers and frequent video buffering—especially on the 2.4 GHz band. But Neutron Managed Access Points include a Band Steering option that automatically shifts the connection of Dual-Band client devices to the 5 GHz band where there is less traffic and more available RF channels.

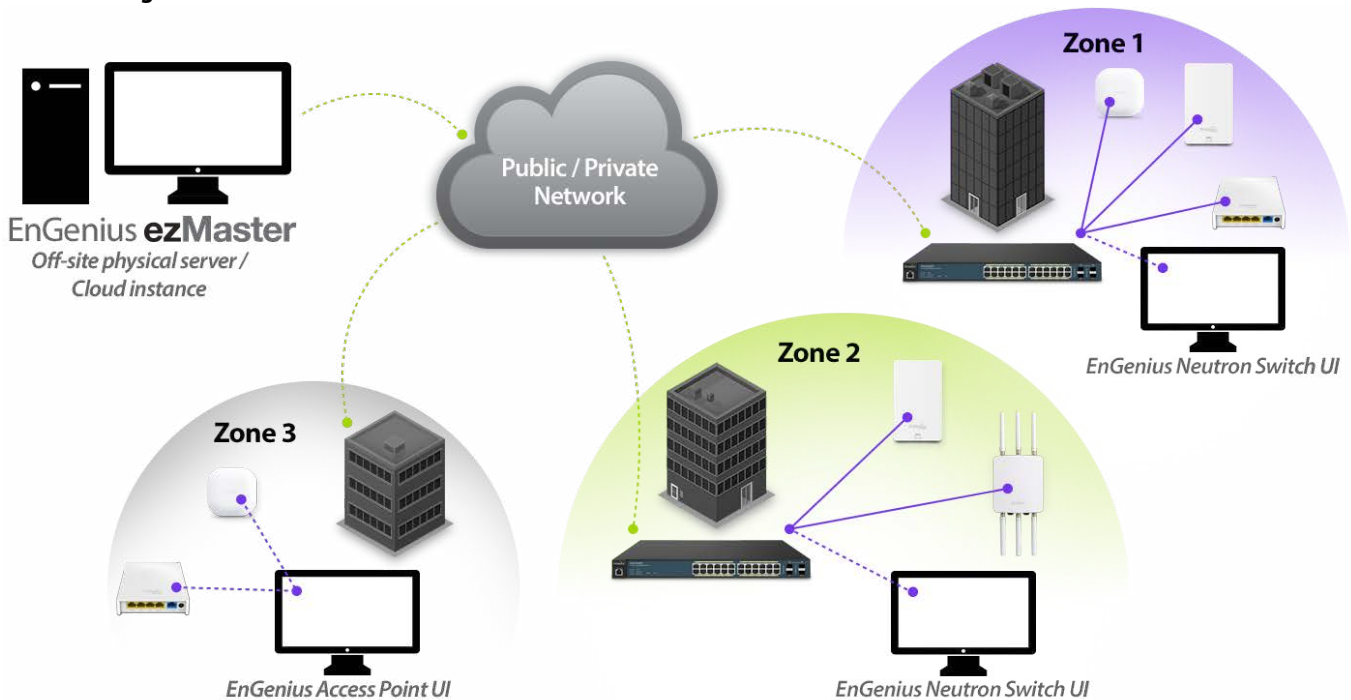
\*Feature available Q4 2015

## Local & Remote Management Options

Neutron Wireless Access Points and Controller Switches can be deployed and managed in a single zone by an on-site Neutron WLAN Controller Switch or the ezMaster Network Management Software. At the same time, various zones can be centrally managed remotely via ezMaster.



**Easily manage 1,000+ devices and 10,000 concurrent users from a single platform with ezMaster Network Management Software.**



## Complete Line of the Neutron Series Products

### Managed Access Points

Model	Description
<b>EWS300AP</b>	Single-Band 11n 2x2:2 2.4 GHz Ceiling-Mount Wireless Managed Indoor Access Point
<b>EWS310AP</b>	Dual-Band 11n 2x2:2 Ceiling-Mount Wireless Managed Indoor Access Point
<b>EWS320AP</b>	Dual-Band 11n 3x3:3 Ceiling-Mount Wireless Managed Indoor Access Point
<b>EWS350AP</b>	Dual-Band 11ac 2x2:2 Ceiling-Mount Wireless Managed Indoor Access Point
<b>EWS360AP</b>	Dual-Band 11ac 3x3:3 Ceiling-Mount Wireless Managed Indoor Access Point
<b>EWS500AP</b>	Single-Band 11n 2x2:2 Wall Plate Wireless Managed Indoor Access Point
<b>EWS510AP</b>	Dual-Band 11n 2x2:2 Wall Plate Wireless Managed Indoor Access Point
<b>EWS650AP</b>	Dual-Band 11ac 2x2:2 Wireless Managed Outdoor Access Point
<b>EWS660AP</b>	Dual-Band 11ac 3x3:3 Wireless Managed Outdoor Access Point
<b>EWS860AP</b>	Dual-Band 11ac 3x3:3 Wireless Ruggedized Managed Outdoor Access Point

### WLAN Controller Switches

Model	Description
<b>EWS2910P</b>	8-Port GigE 61W PoE WLAN Controller/Switch – Manage up to 20 Access Points
<b>EWS2910P-KIT-300</b>	WLAN Starter Kit (1) 8-Port GigE 61W PoE WLAN Controller/Switch – Manage up to 20 APs; (2) EWS300AP Single-Band 11n 2x2:2, 2.4 GHz Ceiling-Mount Wireless Access Points
<b>EWS5912FP</b>	8-Port GigE 130W PoE+ WLAN Management Controller / Switch - Manage up to 20 Access Points
<b>EWS7928P</b>	24-Port GigE 185W PoE+ WLAN Management Controller / Switch - Manage up to 50 Access Points
<b>EWS7928FP</b>	24-Port GigE 370W PoE+ WLAN Management Controller / Switch - Manage up to 50 Access Points
<b>EWS7952FP</b>	48-Port GigE 740W PoE+ WLAN Management Controller / Switch - Manage up to 50 Access Points

## EnGenius Neutron Series Indoor Managed Access Points

	CEILING MOUNT					WALL PLATE	
Models	EWS360AP	EWS350AP	EWS320AP	EWS310AP	EWS300AP	EWS510AP	EWS500AP
Standards	802.11a/b/g/n/ac	802.11a/b/g/n/ac	802.11a/b/g/n	802.11a/b/g/n	802.11b/g/n	802.11a/b/g/n	802.11b/g/n
Frequency	2.4 & 5 GHz	2.4 & 5 GHz	2.4 & 5 GHz	2.4 & 5 GHz	2.4 GHz	2.4 & 5 GHz	2.4 GHz
2.4 GHz Max. Data Rate	450 Mbps	300 Mbps	450 Mbps	300 Mbps	300 Mbps	300 Mbps	300 Mbps
5 GHz Max. Data Rate	1,300 Mbps	867 Mbps	450 Mbps	300 Mbps	N/A	300 Mbps	300 Mbps
Radio Chains/Streams	3 x 3:3	2 x 2:2	3 x 3:3	2 x 2:2	2 x 2:2	2 x 2:2	2 x 2:2
RF Output Power (2.4 GHz)	15 dBm	15 dBm	15 dBm	15 dBm	15 dBm	15 dBm	15 dBm
RF Output Power (5 GHz)	15 dBm	15 dBm	15 dBm	15 dBm	N/A	15 dBm	N/A
Ethernet Ports	1 x Gig Port (PoE+)	1 x Gig Port (PoE+)	1 x Gig Port (PoE+)	1 x Gig Port (PoE+)	1 x Gig Port (PoE+)	- 1 x 10/100 Mbps Access Port (PoE+) - 3 x 10/100 Mbps Access Ports - 1 x Gig Uplink Port (PoE+) - 1 x RJ45 Pass Through Ports	- 1 x 10/100 Mbps Access Port (PoE+) - 3 x 10/100 Mbps Access Ports - 1 x Gig Uplink Port (PoE+) - 2 x RJ45 Pass Through Ports
110 Punch Down Block	-	-	-	-	-	1	1
Power-over-Ethernet	802.3at	802.3at	802.3at	802.3af/at	802.3af	802.3af/at	802.3af/at
Power Consumption (Peak)	22.8W	18W	18.2W	15.6W	9.6W	10.8W	7.5W
Integrated Antenna	6 x 5 dBi	4 x 5 dBi	6 x 5 dBi	4 x 5 dBi	2 x 5 dBi	2 x 4 dBi (2.4 GHz) 2 x 5 dBi (5 GHz)	2 x 4 dBi

### Key Features

- > Sectorized 3D Antenna (select models)
- > Dynamic Channel Optimization
- > Dual-Band (select models)
- > Band Steering (Dual-Band models)
- > Seamless Roaming, Fast Handover
- > Supports Connectivity of 100+ Users\*
- > 16 SSIDs (8 SSIDS per frequency band)
- > Wireless Traffic Shaping
- > QoS
- > SSID-to-VLAN Mapping
- > Email Alert
- > Wi-Fi Scheduler
- > Auto-Reboot
- > AP Detection

### Technical Specifications

#### Frequency

**EWS310AP / EWS320AP / EWS350AP / EWS360AP / EWS510AP**  
2.4 and 5 GHz Frequency Bands

**EWS300AP / EWS500AP**  
2.4 GHz Frequency Band

#### Standards

**EWS300AP / EWS310AP / EWS320AP/EWS510AP**  
IEEE 802.11a/b/g/n

**EWS350AP / EWS360AP**  
IEEE 802.11a/b/g/n/ac

**EWS500AP**  
IEEE 802.11b/g/n

#### Radio I

11b/g/n: 2.412~2.484 GHz

#### Radio II (Dual-Band models only)

11a/n: 5.18-5.24 & 5.26-5.32 & 5.5-5.7 & 5.745-5.825 GHz

#### Data Rates

**EWS300AP / EWS500AP** Up to 300 Mbps in 2.4 GHz frequency band

**EWS310AP / EWS510AP** Up to 300 Mbps in both frequency bands

**EWS320AP** Up to 450 Mbps in both frequency bands

**EWS350AP** Up to 300 Mbps in the 2.4 GHz frequency band; Up to 867 Mbps in the 5 GHz band

**EWS360AP** Up to 450 Mbps in the 2.4 GHz frequency band; Up to 1300 Mbps in the 5 GHz band

#### Memory

**EWS310AP / EWS320AP** 64MB

**EWS300AP / EWS350AP / EWS360AP / EWS500AP / EWS510AP** 128MB

#### Flash Memory

16MB

## Technical Specifications continued

### Power Consumption

**EWS300AP** Up to 9.6W

**EWS310AP** Up to 15.6W

**EWS320AP** Up to 18.2W

**EWS350AP** Up to 18W

**EWS360AP** Up to 22.8W

**EWS500AP** Up to 7.5W

**EWS510AP** Up to 10.8W

### Antennas

#### **EWS300AP**

2 x 5 dBi Internal High Gain Antennas

#### **EWS310AP / EWS350AP**

2 x 5 dBi 2.4 GHz Internal Antennas

2 x 5 dBi 5 GHz Internal Antennas

#### **EWS320AP**

3 x 3 dBi 2.4 GHz Internal Antennas

3 x 5 dBi 5 GHz Internal Antennas

#### **EWS360AP**

3 x 5 dBi 2.4 GHz Internal Antennas

3 x 5 dBi 5 GHz Internal Antennas

#### **EWS500AP**

2 x 4 dBi Internal Antennas

#### **EWS510AP**

2 x 4 dBi 2.4 GHz Internal Antennas

2 x 5 dBi 5 GHz Internal Antennas

### Physical Interface

1 x RJ45 Gigabit Ethernet 10/100/1000 — PoE Capable

1 x Reset Button, 1 x Power Connector

#### **EWS500AP / EWS510AP**

1 x 10/100/1000 Mbps Uplink Port with 802.3af/at PoE

3 x 10/100 Mbps Access Ports

1 x 10/100 Mbps Access Port with PoE Output (support 802.3af output when PoE input is 802.3at)

2 x RJ45 Pass Through Ports

1 x 110 Punch Down Block

1 x DC Power Connector

1 x Reset Button

### LED Indicators

#### **EWS300AP**

1 x Power

1 x WLAN

1 x LAN

#### **EWS310AP / EWS320AP / EWS350AP / EWS360AP**

1 x Power

1 x WLAN (Wireless Connection)

1 x LAN

### LED Indicators continued

#### **EWS500AP / EWS510AP**

1 x Power

1 x WAN

1 x 2.4 GHz

1 x 5 GHz

1 x LAN 1-4

### Power Requirements

Power Supply: 100 to 240 VDC  $\pm$  10%, 50/60 Hz (depends on different countries)

Active Ethernet (Power-over-Ethernet, IEEE 802.3at)

**EWS300AP** Power-over-Ethernet, IEEE 802.3af

Power Adapter (United States) 48VDC/0.375A

Device: 12VDC/2A

**EWS500AP / EWS510AP** 48VDC/0.8A

**EWS300AP** Device: 12VDC/1A

### Modulations

OFDM: BPSK, QPSK, 26-QAM (EWS210AP / EWS300AP) 16-QAM, 64-QAM, DBPSK, DQPSK, CCK

### Operating Channels

**2.4 GHz** US/Canada 1-11

**5 GHz** (Dual-Band models only): Country dependent for the following ranges: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165

### Operation Modes

Access Point

### Multiple BSSID

Supports up to 8 SSIDs Per Radio

### SSID-to-VLAN Tagging

Supports 802.1q SSID-to-VLAN Tagging

### Spanning Tree

Supports 802.1d Spanning Tree Protocol

### Wireless

#### **EWS300AP / EWS500AP**

Wireless Mode: 11b/11g/11n

#### **EWS310AP / EWS320AP / EWS510AP**

Wireless Mode: 11a/11b/11g/11n

#### **EWS350AP / EWS360AP**

Wireless Mode: 11a/11b/11g/11n/11ac

Channel Selection (settings vary by country)

Channel Bandwidth (Auto, 20 MHz, 40 MHz, 80 MHz)

### Transmission Rate

**2.4 GHz** 11n only, 11b/b/n mix, 11b only, 11b/g, 11g only

**5 GHz** (Dual-Band models only): 11ac only, 11n only, 11a/n mix, 11a only

### QoS

WMM (Wireless Multimedia)

**Wireless Management Features** (with ezMaster & Neutron Switch)

Access Point Auto Discovery and Provisioning

Access Point Auto IP Assignment

Access Point Cluster Management

Remote Access Point Rebooting

Access Point Device Name Editing

Access Point Radio Settings

Band Steering (Dual Band models only)

Traffic Shaping

Fast Handover

Fast Roaming

RSSI Threshold

Access Point Client Limiting

Client Fingerprinting

Wireless Security (WEP, WPA/WPA2 Enterprise, WPA/WPA2 PSK)

AP VLAN Management

VLANs for Access Point- Multiple SSIDs

Secured Guest Network

Captive Portal

Access Point Status Monitoring

Rogue AP Detection

Wireless Client Monitoring

Background Scanning

Email Alert

Wireless Traffic & Usage Statistics

Real-time Throughput Monitoring

SmartSync Redundancy\*

Visual Topology View

Floor Plan View

Map View

Wireless Coverage Display

Secure Control Messaging (SSL Certificate)

Local MAC Address Database

Remote MAC Address Database (RADIUS)

Unified Configuration Import / Export

Bulk Firmware Upgrade Capability

One-Click Update

Intelligent Diagnostics

Kick/Ban Clients

### Tx Power Control

Adjust Transmit Power by dBm

\*Feature available Q4 2015



## Technical Specifications continued

<b>Configuration</b>	<b>CLI</b>	<b>Certifications</b>
Web-based Configuration (http)	Supports Command Line Interface	FCC, IC
<b>Firmware Upgrade</b>	<b>Diagnosis</b>	<b>Device Dimensions and Weights</b>
Via Web Browser, Settings are Reserved After Upgrade	IP Pinging Statistics	<b>EWS300AP</b>
<b>Administrator Setting</b>	<b>Log</b>	Weight: .45 lbs. (204.1 g)
Administrator Username and Password Change	SysLog and Local Log Support	Length: 5.07" (128.7 mm)
<b>MIB</b>	<b>LED Control</b>	Width: 5.07" (128.7 mm)
MIB I, MIB II (RFC1213) and private MIB	On/Off	Height: 1.73" (43.9 mm)
<b>System Monitoring</b>	<b>AP Detection</b>	<b>EWS310AP</b>
Status Statistic and Event Log	Scanning for Available EnGenius APs	Weight: 0.80 lbs. (362.8 g)
<b>SNMP</b>	<b>Wireless Security</b>	Length: 6.36" (161.5 mm)
V1, V2c, V3	WPA/WPA2 Personal (WPA-PSK using TKIP or AES)	Width: 6.36" (161.5 mm)
<b>Traffic Shaping</b>	WPA/WPA2 Enterprise (WPA-EAP using TKIP)	Height: 1.64" (41.6 mm)
Incoming and Outgoing Wireless Traffic Shaping	802.1X RADIUS Authenticator: MD5/TLS/TTLS, PEAP	<b>EWS320AP</b>
<b>Reset Setting</b>	SSID Broadcast Enable/Disable	Weight: 0.80 lbs. (362.8 g)
Reboot (press and hold for 2 seconds). Reset to Factory Default (press and hold for 10 seconds)	MAC Address Filtering, Up to 50 Fields	Length: 6.5" (165.1 mm)
<b>Auto-Channel Selection</b>	L2 Isolation (Access Point mode)	Width: 6.5" (165.1 mm)
Automatically Selecting Least Congested Channel	<b>QoS (Quality of Service)</b>	Height: 1.64" (4.6 mm)
<b>Bandwidth Measurement</b>	WMM (Wireless Multimedia)	<b>EWS350AP / EWS360AP</b>
IP Range and Bandwidth Management	<b>Temperature Range</b>	Weight: 0.80 lbs. (362.8 g)
<b>Schedule Reboot</b>	Operating: 0 to 50°C (32° to 122°F)	Length: 6.5" (165.1 mm)
Reboot Access Point by Minute, Hour, Day, or Week	Storage temperature: -20°C to 60°C (-4°F to 140°F)	Width: 4.33" (110 mm)
<b>Backup and Restore</b>	<b>Humidity</b> (non-condensing)	Height: 5.19" (130 mm)
Save and Restore Settings via Web Interface	Operating: 90% or less	<b>Warranty</b>
	Operating: 90% or less	1-Year Standard
	<b>Physical Security</b> (n/a for EWS500AP/EWS510AP)	
	Kensington Security Slot	

## EnGenius Neutron Series Outdoor Managed Access Points



Models	EWS860AP	EWS660AP	EWS650AP
Standards	802.11a/b/g/n/ac	802.11a/b/g/n/ac	802.11b/g/n/ac
Frequency	2.4 & 5 GHz	2.4 & 5 GHz	2.4 & 5 GHz
2.4 GHz Max. Data Rate	450 Mbps	450 Mbps	300 Mbps
5 GHz Max. Data Rate	1,300 Mbps	1,300 Mbps	867 Mbps
Radio Chains/Streams	3 x 3:3	3 x 3:3	2 x 2:2
RF Output Power	15 dBm	15 dBm	15 dBm
Ingress Protection Rating	68	55	55
Primary Ethernet Port	1 x Gigabit Port	1 x Gigabit Port	1 x Gigabit Port
Secondary Ethernet Port	1 x Gigabit Port (PoE Output)	1 x Gigabit Port	1 x Gigabit Port
PoE Compliant	802.3at (PoE+)	802.3at (PoE+)	802.3at (PoE+)
Power Consumption (Peak)	35.7W	23W	23W
Integrated Antennas	N/A	6 x 5 dBi	2 x 5 dBi
External Antennas	2.4 GHz: 3 x 5 dBi 5 GHz: 3 x 7 dBi	N/A	N/A

### Key Features

- > Tough IP68- and IP55-Rated Housings
- > 802.11ac Wireless Speeds
- > Dynamic Channel Optimization
- > Dual-Band
- > Band Steering
- > Seamless Roaming, Fast Handover
- > Supports Connectivity of 100+ Users\*
- > 16 SSIDs (8 SSIDS per frequency band)
- > Wireless Traffic Shaping
- > QoS
- > SSID-to-VLAN Mapping
- > Email Alert
- > Wi-Fi Scheduler
- > Auto-Reboot
- > AP Detection

## Technical Specifications

### Frequency

RF: 2.4 and 5 GHz Frequency Bands

### Standards

IEEE 802.11a/b/g/n/ac

### Radio I

11b/g/n: 2.412~2.484 GHz

### Radio II

11a/n/ac: 5.18-5.24 and 5.26-5.32 and 5.5-5.7 and 5.745-5.825 GHz

### Data Rates

#### EWS650AP

Up to 300 Mbps in 2.4 GHz; up to 867 Mbps in 5 GHz

#### EWS660AP / EWS860AP

Up to 450 Mbps in 2.4 GHz; up to 1300 Mbps in 5 GHz

### Memory

128MB

### Flash Memory

16MB

### Power Consumption

**EWS650AP** Up to 23W

**EWS660AP** Up to 23W

**EWS860AP** Up to 34W

### Antenna Array

**EWS650AP / EWS660AP**

Internal High Gain Antenna Array supporting both 2.4 GHz and 5 GHz

#### EWS860AP

External High Gain Antennas 3 x 5 dBi for 2.4 GHz

External High Gain Antennas 3 x 7 dBi for 5 GHz

### Physical Interface

2 x RJ45 Gigabit Ethernet (10/100/1000 Mbps) - PoE Capable 802.3at

1 x Reset Button

1 x Power Connector

### LED Indicators

1 x Power

1 x 2.4 GHz, 1 x 5 GHz

1 x WLAN (Wireless Connection)

1 x LAN

### Power Requirements

Power Supply: 100 to 240V DC +/-10% 50/60 Hz

Active Ethernet (Power-over-Ethernet IEEE 802.3at)

PoE Injector: DC IN, 48V/0.8A

### Modulations

OFDM: BPSK, QPSK, 26-OAM, 64-QAM, DBPSK, DQPSK, CCK

### Operating Channels

2.4 GHz US/Canada 1-11

**5 GHz** Country dependent for the following ranges: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165

### Operation Modes

Access Point

### Multiple BSSID

Supports Up to 8 SSIDs Per Radio

## Technical Specifications continued

### SSID-to-VLAN Tagging

Supports 802.1q SSID-to-VLAN Tagging

### Spanning Tree

Supports 802.1d Spanning Tree Protocol

### Wireless

Wireless Mode: 11a/11b/11g/11n/11ac

Channel Selection (settings vary by country)

Channel Bandwidth (Auto, 20 MHz, 40 MHz, 80 MHz)

### Transmission Rate

**2.4 GHz** 11n only, 11b/b/n mix, 11b only, 11b/g, 11g only

**5 GHz** 11ac only, 11n only, 11a/n mix, 11a only

### QoS

WMM (Wireless Multimedia)

### Wireless Management Features (with ezMaster & Neutron Switch)

Access Point Auto Discovery and Provisioning

Access Point Auto IP Assignment

Access Point Cluster Management

Remote Access Point Rebooting

Access Point Device Name Editing

Access Point Radio Settings

Band Steering

Traffic Shaping

Fast Handover

Fast Roaming

Access Point Client Limiting

Client Fingerprinting

Wireless Security (WEP, WPA/WPA2 Enterprise, WPA/WPA2 PSK)

AP VLAN Management

VLANs for Access Point- Multiple SSIDs

Secured Guest Network

Captive Portal

Access Point Status Monitoring

Rogue AP Detection

Wireless Client Monitoring

Background Scanning

Email Alert

Wireless Traffic & Usage Statistics

Real-time Throughput Monitoring

SmartSync Redundancy\*

Visual Topology View

Floor Plan View

Map View

Wireless Coverage Display

Secure Control Messaging (SSL Certificate)

Local MAC Address Database

Remote MAC Address Database (RADIUS)

### Wireless Management Features (with ezMaster & Neutron Switch) continued

Unified Configuration Import / Export

Bulk Firmware Upgrade Capability

One-Click Update

Intelligent Diagnostics

Kick/Ban Clients

### Tx Power Control

Adjust Transmit Power by dBm

### Configuration

Web-Based Configuration (http)

### Firmware Upgrade

Via Web Browser, Settings are Reserved after Upgrade

### Administrator Settings

Administrator Username and Password Change

### MIB

MIB I, MIB II (RFC1213) and private MIB

### System Monitoring

Status Statistic and Event Log

### SNMP

V1 / V2c / V3

### Traffic Shaping

Incoming and Outgoing Wireless Traffic Shaping

### Reset Settings

Reboot (press & hold for 2 seconds).

Reset to Factory Default (press & hold for 10 seconds)

### Auto-Channel Selection

Automatically Selecting Least Congested Channel

### Bandwidth Measurement

IP Range and Bandwidth Management

### Schedule Reboot

Reboot Access Point by Minute, Hour, Day, or Week

### Backup and Restore

Save and Restore Settings via Web Interface

### CLI

Supports Command Line Interface

### Diagnosis

IP Pinging Statistics

### Log

SysLog and Local Log Support

### LED Control

On/Off

### AP Detection

Scanning for Available EnGenius APs

### Wireless Security

WPA/WPA2 Personal (WPA-PSK using TKIP or AES)

WPA/WPA2 Enterprise (WPA-EAP using TKIP)

802.1X RADIUS Authenticator: MD5/TLS/TTLS, PEAP

SSID Broadcast Enable/Disable

MAC Address Filtering, Up to 50 Fields

Guest Network

L2 Isolation (Access Point mode)

### QoS (Quality of Service)

WMM (Wireless Multimedia)

### Temperature Range

Operating: -4°F~158°F/-20°C~70°C

Storage: -22°F~176°F/-30°C~80°C

### Humidity (non-condensing)

Operating: 90% or less

Storage: 90% or less

### Weatherproof

**EWS650AP** IP55-Rated Enclosure

**EWS660AP** IP55-Rated Enclosure

**EWS860AP** IP68-Rated Enclosure

### Certifications

FCC, IC, CE

### Device Dimensions and Weights

**EWS650AP / EWS660AP**

Weight: 1.89 lbs. (857.2 g)

Length: 11.97" (304 mm)

Width: 7.13" (181.1 mm)

Height: 1.81" (45.9 mm)

**EWS860AP**

Weight: 4.17 lbs. (1.8 kg)

Length: 11.22" (284.9 mm)

Width: 8.58" (217.9 mm)

Height: 2.10" (53.3 mm)

### Warranty

1-Year Standard

\*Feature available Q4 2015

## EnGenius Neutron Series WLAN Management Switches

Models	EWS7952FP	EWS7928FP	EWS7928P	EWS5912FP	EWS2910P
Supported EWS AP	50	50	50	20	20
10/100/1000 Base-T, PoE+	48	24	24	8	8
Total PoE Budget	740W	370W	185W	130W	61.6W
PoE+ Capable Port	1-48	1-24	1-24	1-8	1-8 (802.3af only)
Rackmount	19" 1U	19" 1U	19" 1U	13" 1U	9.45" (desktop)
SFP Ports	4	4	4	2	2
Auto Uplink Gigabit Ports	-	-	-	●	-
RJ45 Console Port	●	●	●	●	-
Annual License Fee Per AP	\$0	\$0	\$0	\$0	\$0

### Key Features

- > Access Point Auto Discovery & Provisioning
- > Access Point Auto IP-Assignment
- > Access Point Cluster Management
- > Visual Topology View
- > Floor Plan & Map View
- > Wireless Coverage Display
- > Access Point Status Monitoring
- > Wireless Client Monitoring
- > Wireless Traffic & Usage Statistics
- > Real-time Throughput Monitoring
- > Bulk Firmware Upgrade Capability
- > Remote Access Point Rebooting
- > Fast Roaming
- > Fast Handover
- > Band Steering
- > Traffic Shaping
- > Intelligent Diagnostics
- > Access Point Device Name Editing
- > Access Point Radio Settings
- > Access Point Client Limiting
- > Wireless Security (WEP, WPA/WPA2 Enterprise, WPA/WPA2 PSK)

### Technical Specifications

#### Switching Capacity

EWS2910P: 20 Gbps  
 EWS5912FP: 24 Gbps  
 EWS7928P: 56 Gbps  
 EWS7928FP: 56 Gbps  
 EWS7952FP: 104 Gbps

#### Forwarding Mode

Store and Forward

#### SDRAM

256MB

#### Flash Memory

32MB

#### Port Functions

##### EWS2910P

8 x 10/100/1000 Mbps Ports in the front panel  
 2 x 100/1000 Mbps SFP Slot

##### EWS5912FP

8 x 10/100/1000 Mbps Ports in the front panel  
 2 x 100/1000 Mbps SFP Slot

2 x Gigabit Uplink Ports

1 x RJ45 Console Port

##### EWS7928FP / EWS7928P

24 x 10/100/1000 Mbps Ports in the front panel  
 4 x 100/1000 Mbps SFP Slot  
 1 x RJ45 Console Port

#### Port Functions continued

##### EWS7952FP

48 x 10/100/1000 Mbps Ports in the front panel  
 4 x 100/1000 Mbps SFP Slot  
 1 x RJ45 Console Port

#### PoE Capability

##### EWS2910P

PoE Standard: Ports 1~8 Support IEEE 802.3af

##### EWS5912FP

PoE Standard: Ports 1~8 Support IEEE 802.3at/af

##### EWS7928FP / EWS7928P

PoE Standard: Ports 1~24 Support IEEE 802.3at/af

##### EWS7952FP

PoE Standard: Ports 1~48 Support IEEE802.3at/af

#### PoE Capable Ports

**EWS2910P** Ports 1~8 Can Output Up to 15W

**EWS5912FP** Ports 1~8 Can Output Up to 30W

**EWS7928P** All Gigabit Ethernet Ports / Up to 30W

**EWS7928FP** All Gigabit Ethernet Ports / Up to 30W

**EWS7952FP** All Gigabit Ethernet Ports / Up to 30W

#### PoE Power Budget

**EWS2910P** 61.6 watts

**EWS5912FP** 130 watts

**EWS7928P** 185 watts

**EWS7928FP** 370 watts

**EWS7952FP** 740 watts

## Technical Specifications continued

### LED Indicators

1 x Power LED  
1 x Fault LED  
1 x PoE Max LED  
1 x LAN Mode LED  
1 x PoE Mode LED  
Copper Ports: LAN/PoE Mode, Link/Act  
SFP Ports: Link/Act, Speed

### Wireless Management Features (with Neutron Series Access Points & ezMaster)

**EWS2910P / EWS5912FP:** Manages up to 20 Neutron Series APs

**EWS7952FP / EWS7928P / EWS7928FP:** Manages up to 50 Neutron Series APs

Access Point Auto Discovery and Provisioning

Access Point Auto IP Assignment

Access Point Cluster Management

Remote Access Point Rebooting

Access Point Device Name Editing

Access Point Radio Settings

Band Steering

Traffic Shaping

Fast Handover

Fast Roaming

Access Point Client Limiting

Client Fingerprinting

Wireless Security  
(WEP, WPA/WPA2 Enterprise, WPA/WPA2 PSK)

AP VLAN Management

VLANs for Access Point- Multiple SSIDs

Secured Guest Network

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Map View

Wireless Coverage Display

Secure Control Messaging (SSL Certificate)

Local MAC Address Database

Remote MAC Address Database (RADIUS)

Unified Configuration Import / Export

Bulk Firmware Upgrade Capability

One-Click Update

Intelligent Diagnostics

Kick/Ban Clients

### L2 Features

802.3ad Link Aggregation  
Port Mirroring  
Port Trunking  
Spanning Tree Protocol  
> 802.1D Spanning Tree (STP)  
> 802.1w Rapid Spanning Tree (RSTP)  
> 802.1s Multiple Spanning Tree (MSTP)  
IGMP Snooping v1/v2/v3  
IGMP Fast Leave  
VLAN Group  
Voice VLAN  
MLD Snooping  
Bandwidth Control  
Queue  
> 802.1w Rapid Spanning Tree (RSTP)  
> CoS-based on 802.1p Priority  
> CoS-based on TOS  
> CoS-based on DSCP  
> CoS-based on Physical Port  
802.1X Port-based Access Control  
802.1X Guest VLAN  
Port Security  
Storm Control  
Port Isolation  
Attack Prevention  
Access Control List (ACL)  
PoE Management  
> Power On/Off Per Port  
> Power Class Configuration  
> Power Feeding with Priority  
> User Defined Power Limit  
IEEE 802.3az (Energy Efficient Ethernet)  
SSH Server  
Telnet Server  
TFTP Client  
TFTP Upgrade  
BootP/DHCP Client  
Web-based Support  
SNMP v1 / v2c / v3 Support  
Command Line Interface (CLI)  
SNTP  
RMONv1  
SYSLOG  
Cable Diagnostics  
MIB Support  
> RFC1213 / RFC1493 / RFC1757 / RFC2674

### Temperature Range

**EWS2910P** Operating: 32°F to 104°F / 0°C to 40°C

**EWS5912FP / EWS7928P / EWS7928FP / EWS7952FP**  
Operating: 32°F to 122°F / 0°C to 50°C

### Humidity (non-condensing)

Operating: 5% - 95%

Storage Temperature: -40°F to 158°F / -40°C to 70 °C

### Certifications

FCC, IC, CE

### Device Dimensions and Weights

#### EWS2910P

Weight: 1.36 lbs. (620 g)

Width: 9.45" (240 mm)

Length: 4.13" (105 mm)

Height: 1.06" (27 mm)

#### EWS5912FP

Weight: 4.4 lbs (1.9 kg)

Width: 13.00" (330.20 mm)

Length: 9" (228.60 mm)

Height: 1.73" (43.94 mm)

#### EWS7928P / EWS7928FP

Weight: 7.82 lb (3.5 kg)

Width: 17.3" (439 mm)

Length: 10.24" (260 mm)

Height: 1.73" (44 mm)

#### EWS7952FP

Weight: 14.15 lbs. (6.4 kg)

Width: 17.32" (439.9 mm)

Length: 16.14" (409.9 mm)

Height: 1.73" (43.9 mm)

### Warranty

1-Year Standard

\*Feature available Q4 2015

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Singapore | (+65) 6227 1088  
[www.enginustech.com.sg](http://www.enginustech.com.sg)



\*For Dual Band models only. Subject to variations due to usage and applications.

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