EnGenius

Datasheet

Distributed Network Management

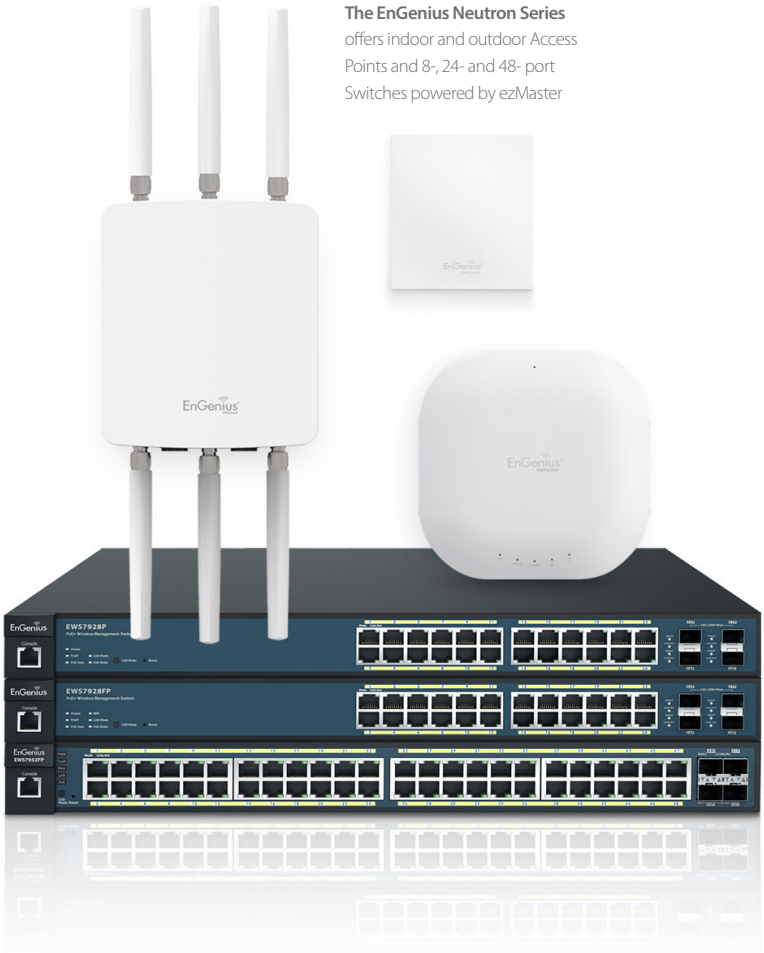
Neutron Series powered by ezMaster™

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

Features and Benefits

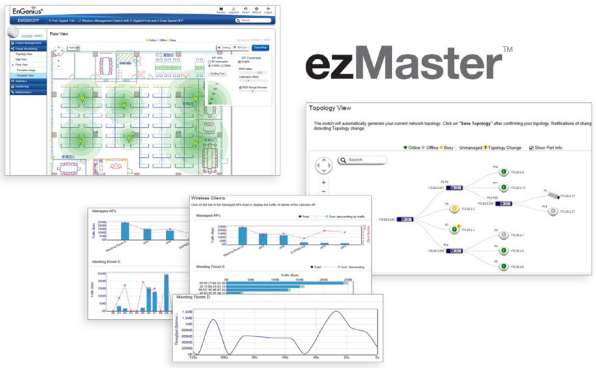
- Enterprise-class Performance
- Deploy ezMaster via **Cloud-Based*** **Service** or on a **Remote** or **Local** Server
- Highly Scalable, from **1 to 1,000+** Access Points & Switches
- Modular Designed, **Feature-Rich Hardware**
  - High Performance, Long-Range Indoor/Outdoor APs
  - 8, 24 & 48-Port 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

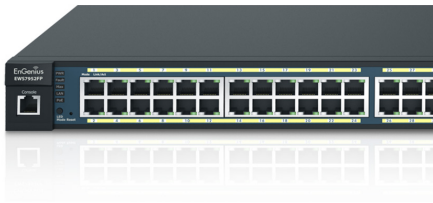
*Feature available Q4 2015

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.

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 synched 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.

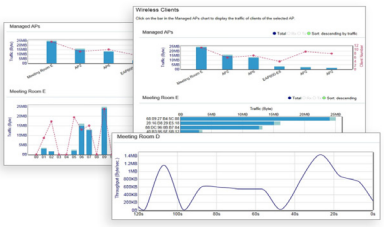
Email Alerts

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

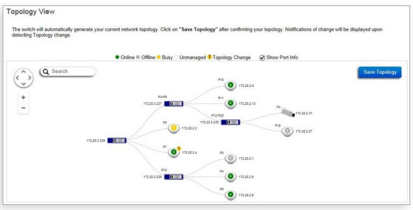
Rich Reporting and Analytics

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.

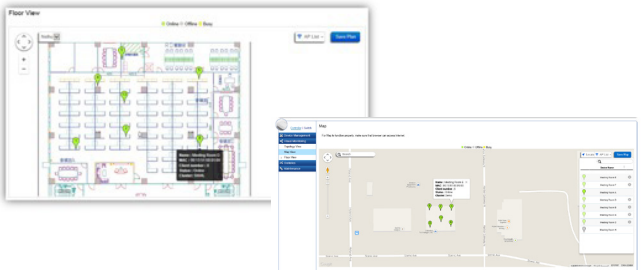
- **Statistics View** provides real-time and historical visibility of traffic flow.



- **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
- Display Channel Utilization
- Day or Night Business Surveillance
- One-Click Firmware Upgrade
- Wireless Coverage Display
- Kick/Ban Clients
- Controller Event Log
- AP LED On/Off
- IP Cam Topology
- Seamless Migration*
- SmartSync Redundary*

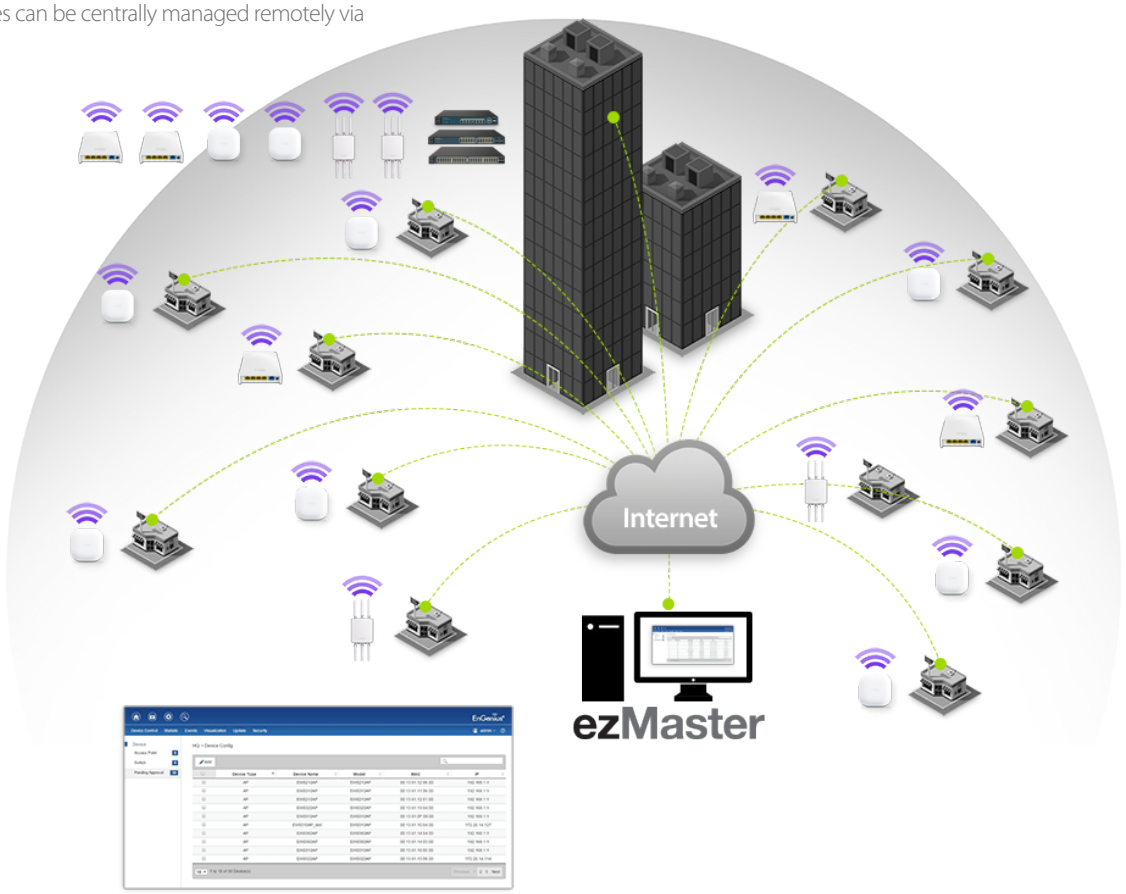
Effortless Band Steering

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.

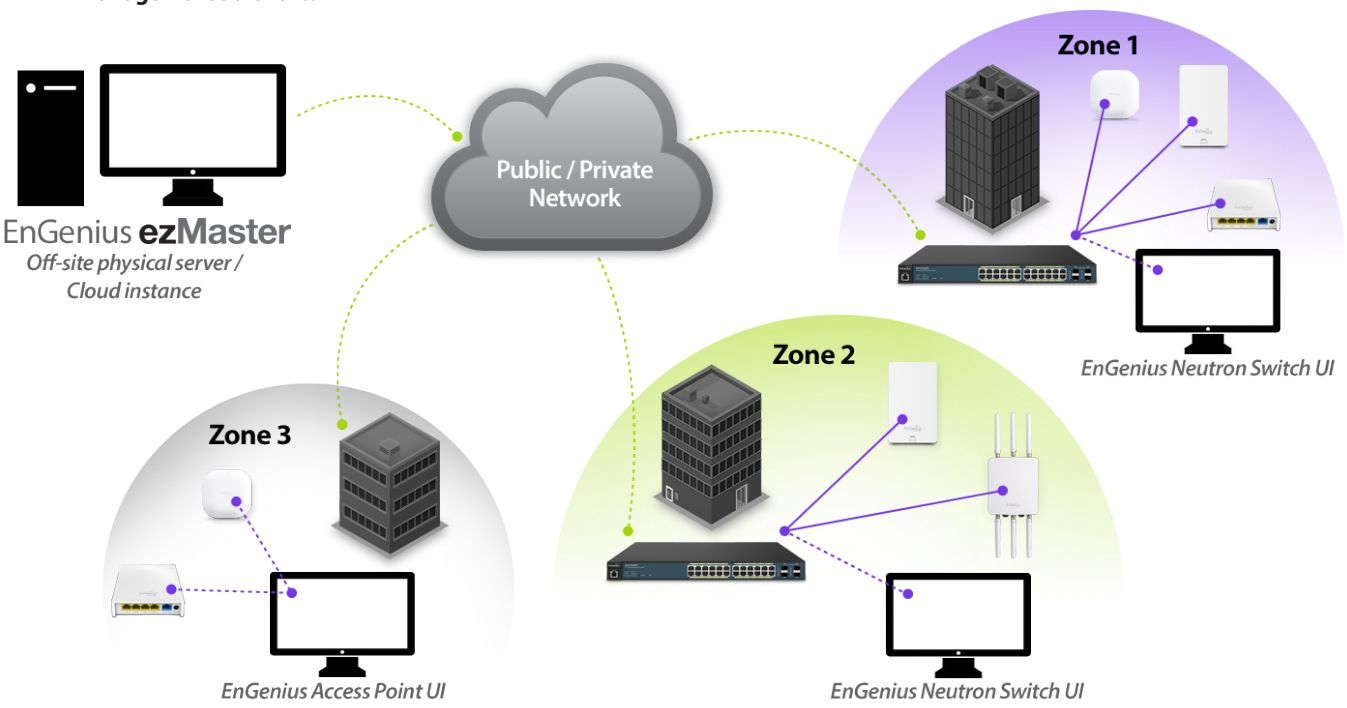
*Feature available Q4 2015

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

WLAN Controller Switches

Model	Description
EWS2910P	8-Port GigE 61W PoE WLAN Controller/Switch – Manage up to 20 Access Points
EWS2910P-Kit-300	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
EWS5912FP	8-Port GigE 130W PoE+ WLAN Management Controller / Switch - Manage up to 20 Access Points
EWS7928P	24-Port GigE 185W PoE+ WLAN Management Controller / Switch - Manage up to 50 Access Points
EWS7928FP	24-Port GigE 370W PoE+ WLAN Management Controller / Switch - Manage up to 50 Access Points
EWS7952FP	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	450 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)	28 dBm	26 dBm	28 dBm	29 dBm	29 dBm	20 dBm	20 dBm
RF Output Power (5 GHz)	28 dBm	26 dBm	28 dBm	26 dBm	N/A	20 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
IEEE 802.11a/b/g/n

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

EWS500AP / EWS510AP
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 ± 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-OAM (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

LAN

IP (check validity and DHCP server IP range) MAC

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

Technical Specifications continued

Configuration

Web-based Configuration (http)

Firmware Upgrade

Via Web Browser, Settings are Reserved After Upgrade

Administrator Setting

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 Setting

Reboot (press and hold for 2 seconds).
Reset to Factory Default (press and 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
L2 Isolation (Access Point mode)

QoS (Quality of Service)

WMM (Wireless Multimedia)

Temperature Range

Operating: 0 to 50ºC (32º to 122ºF)
Storage temperature: -20ºC to 60ºC (-4ºF to 140ºF)

Humidity (non-condensing)

Operating: 90% or less
Operating: 90% or less

Physical Security

Kensington Security Slot

Certifications

FCC, IC

Device Dimensions and Weights

EWS300AP

Weight: .45 lbs. (204.1 g)
Length: 5.07" (128.7 mm)
Width: 5.07" (128.7 mm)
Height: 1.73" (43.9 mm)

EWS310AP

Weight: 0.80 lbs. (362.8 g)
Length: 6.36" (161.5 mm)
Width: 6.36" (161.5 mm)
Height: 1.64" (41.6 mm)

EWS320AP

Weight: 0.80 lbs. (362.8 g)
Length: 6.5" (165.1 mm)
Width: 6.5" (165.1 mm)
Height: 1.64" (4.6 mm)

EWS350AP / EWS360AP

Weight: 0.80 lbs. (362.8 g)
Length: 6.5" (165.1 mm)
Width: 6.5" (165.1 mm)
Height: 1.64" (4.6 mm)

EWS500AP / EWS510AP

Weight: .65 lbs. (296 g)
Length: 1.45" (37 mm)
Width: 4.33" (110 mm)
Height: 5.19" (130 mm)

Warranty

1-Year Standard

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	29 dBm	29 dBm	27 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 WPS

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)

DC IN, 12V/2A

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

Topology

Infrastructure/Ad-Hoc

Operation Modes

Access Point

Multiple BSSID

Supports Up to 8 SSIDs Per Radio

Technical Specifications continued

LAN

IP (check validity and DHCP server IP range) MAC

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: -4ºF~158ºF/-20ºC~70ºC

Storage: -22ºF~176ºF/-30ºC~80ºC

Humidity (non-condensing)

Operating: 90% or less

Storage: 90% or less

Weatherproof

EWS650AP IP55-Rated Enclosure

EWS660AP IP65-Rated Enclosure

EWS860AP IP68-Rated Enclosure

Physical Security

Kensington Security Slot

Certifications

FCC, IC

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

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
EWS7928FP 48 Ports Can Output 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: EWS2910P & EWS7952FP only)

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

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Map View

Wireless Coverage Dislpay

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 50°C

EWS5912FP / EWS7928P / EWS7928FP Operating: 32°F to 104°F / 0°C to 40°C

EWS7952FP Operating: 32°F to 104°F / 0°C to 40°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

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Version 6.0 - 09/11/15

Maximum data rates are based on IEEE 802.11 standards. Actual throughput and range may vary depending on distance between devices or traffic and bandwidth load in the network. Compliant with FCC - This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.