EnTurbo™ Series Outdoor Advanced 11ac Wave 2 Access Points & Bridges

Turbocharged Outdoor Wireless

EnTurbo Outdoor Access Points and Bridges turbocharge high bandwidth wireless speed, coverage, and reliability in point-to-point and point-to-multipoint connections. EnTurbo makes powerful, next generation Wave 2, business-class Wi-Fi affordably accessible for small to mid-size businesses and large residences.

Turbocharged Performance

EnTurbo's powerful onboard Qualcomm® 717 MHz quad-core processors turbocharge wireless performance and efficiency with up to 30 percent faster throughput compared to 11ac Wave 1 3x3 access points. Combined with new 11ac technology, EnTurbo Access Points and Bridges maximize speed and performance, support greater user device capacity and enhanced connection reliability.
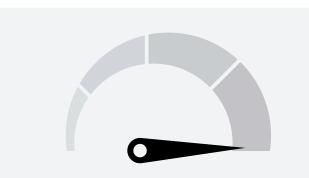
Features & Benefits

- Quad-Core CPU, 717 MHz "Turbo Engine"
- 11ac Wave 2 Wireless Speeds to 867 Mbps (5 GHz); to 400 Mbps (2.4 GHz)
- Up to 30% Faster Throughput Over 11ac Wave 1 3x3 APs
- Integrated Directional or Detachable Omni Antennas
- 360-Degree, 3-Axis Pivot Arm Locks for Precise Alignment (EnStation5-AC)
- IP55-Rated Housing Withstands Harsh Environments
- MU-MIMO Improves Performance & Device Capacities
- Beamforming Optimizes Antenna Signal, Reception & Reliability for Clients
- High Power Extends Wi-Fi Outdoors or Building-to-Building
- GigE PoE Port & Adapter Included for Placement Where Power is Limited
- Multi-Operation Modes: Access Point, Client Bridge & WDS
- Suite of Advanced AP Management & Security Features
- Simple Web-Based AP Monitoring & Management Software
- Stand-Alone or Manage in AP Mode via EnGenius Switches or ezMaster™ Software

Next Generation Wireless Technology

Improve wireless performance to outdoor areas and point-to-point by replacing your old wireless with new, advanced 11ac Wave 2 Technology.

Maximized Speed & Performance

Achieve maximized wireless speeds and enhanced performance while eliminating network lag to multiple users outdoors or while bridging wireless networks between buildings. EnTurbo Outdoor reach speeds to 867 Mbps on 5 GHz and to 400 Mbps on the 2.4 GHz frequency band.
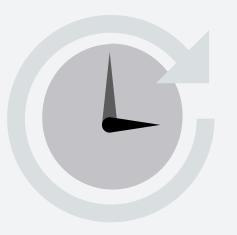
Improved Signal Reliability

Beamforming Antenna technology directs and adjusts signal beams ensuring optimal signal and reception reliability for users moving through outdoor coverage areas.

Increased User Capacities

Multi-User (MU) MIMO sends dedicated wireless streams to multiple user devices at the same time, improving your network's efficiency.

Future-Proof Network

Upgrade from slower, older technology while supporting the future needs of IoT and mobile technology. Ensure your network against further upgrades for the next five years.

Outdoor Access Points

Provide broad-reaching, fast 11ac Wave 2 access to users in a variety of settings. EnTurbo Outdoor APs are flexible and small enough for use in either indoor or outdoor environments. Achieve high-powered, long-range connections with integrated or detachable antenna options.

Create Wi-Fi Hot-Spots

Pair the ENS620EXT and ENS500EXT-AC with EnGenius' sector antennas to create a powerful wireless base station with 120° sector-wide coverage. Offer high-capacity, long-range, point-to-multipoint coverage and create large Wi-Fi hotspots for:

- Outdoor Shopping Centers
- Warehouses & Arenas
- Campus Quads & Stadiums
- Campgrounds & Marinas
- Outdoor Theaters & Recreational Facilities
- Internet Service Providers

Outdoor Long-Range Bridges

Extend the wireless network in locations where cabling is not possible or practical while eliminating the expense of extended cable runs. Connect a secondary device such as an IP surveillance camera or access point for greater deployment flexibility.

Deliver precise short and long-range point-to-point links in settings such as:
- Between Buildings
- Across Large Campuses & Stadiums
- Over Vast Acreage: Parks, Golf Courses, Ranches
- City Blocks, Parking Lots & Marinas
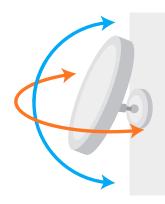- In Sizeable Indoor Structures: Distribution Centers & Arenas

EnStation5-AC: Precise, Long-Range Point-to-Point Connectivity

The EnTurbo EnStation5-AC offers high 23 dBm output power and high receive sensitivity. This coupled with its embedded 19 dBi high-gain directional antennas that emit a narrow signal beam, deliver stable connectivity, optimal bandwidth and high-speed data rates over extremely long distances – up to 5 miles in clear, line of sight point-to-point deployments.
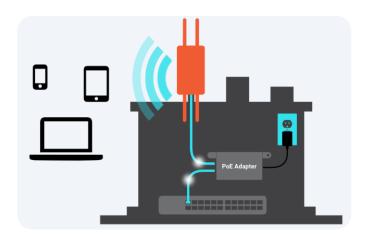
Position for Maximum Connectivity

Easily position EnStation5-AC for maximum connectivity with its 360-degree, 3-axis pivoting arm that locks in place to ensure precise alignment between other EnStation5-AC devices.

PoE Supports Flexible Power Options

Connect and power EnTurbo Outdoor APs and Bridges via their dual-PoE Gigabit ports and included PoE Adapter for placement in locations where power outlets are unavailable such as on roofs, poles or other remote areas.

Flexible Operation & Configuration Options

Access Point, Client Bridge, and WDS mode configurations broaden the Outdoor APs and Bridge's adaptability to your network needs. With multiple operation modes, these flexible devices offer versatility in point-to-point or point-to-multipoint deployments.

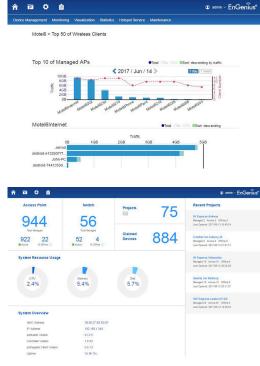## Optimal Performance in Harsh Environments

EnTurbo Outdoor APs and Bridges are designed to perform in harsh conditions and feature ruggedized IP55-rated enclosures. Ensure your network operates in extreme outdoor climates and indoor industrial environments where temperature is a factor. EnTurbo is protected from prolonged exposure to sunlight, cold, frost, snow, rain, hail, heat and humidity.

ezMaster™

Network Management

The EnTurbo Outdoor APs and Bridges can operate as stand-alone devices or as part of a scalable EnGenius Wireless Network Management Solution. Manage EnTurbo APs and Bridges while in AP mode via Neutron Switches or remotely with ezMaster and expand easily as your network needs grow.

Manage Up to 50 EnTurbo APs with EnGenius Managed Switches

Any EnGenius Gigabit Managed Switch can also manage up to 50 EnTurbo APs or Bridges when in AP mode. Through the switch, access all connected EnGenius devices operating in AP mode, as well as a full array of wireless and Layer 2 management tools. Choose between PoE+ and non-PoE switch models with flexible deployment and management options and no AP license or subscription fees.

System Requirements

Recommended environment for managing up to 500 APs
CPU: Intel® Core™ i7 quad-core or above
RAM: 4 GB minimum
HDD: 500 GB (actual requirement dependent on log size)
OS: Microsoft® Windows® 7 or later + VMware® Player 7.0 or compatible virtualization software

Recommended environment for managing up to 1,000+ APs
CPU: Intel® Xeon® Processor E3 or above
RAM: 4 GB minimum
HDD: 500 GB (actual requirement dependent on log size)
OS: Microsoft® Windows® 7 or later + VMware® Player 7.0 or compatible virtualization software

Browser Requirements
Internet Explorer 10 or better
Firefox 34.0 or better
Chrome 31.0 or better
Safari 8.0 or better

Network Topology Requirements
At sites where APs are deployed: A DHCP-enabled network for APs to obtain an IP address

ezMaster Network Management Software

EnGenius ezMaster Software's simple, intuitive Web-based interface allows flexible access point monitoring - locally or remotely. Quickly and easily set up, manage, monitor, and troubleshoot multiple APs at the same time. See real-time network performance and monitor AP traffic through ezMaster's at-a-glance dashboard.

EzMaster provides business-class features, unlimited scalability and centralized management of hundreds of EnTurbo Access Points and EnGenius Switches - locally, remotely or via a cloud-based service, with no licensing or subscription fees.

ezMaster Software Features

• **Centralized Management**
  - Configure, Manage & Monitor
  - Cross-Network AP Management
  - AP Group Configuration
• **Access Point Configuration & Management**
  - Band Steering (Auto Band Steering & Band Balancing)
  - Client Isolation
  - Client Limiting
  - Fast Roaming
  - L2 Isolation
  - LED On/Off Control
  - Multiple SSID
  - RSSI Threshold
  - Secure Guest Network
  - Traffic Shaping
  - VLAN Isolation
  - VLAN Tag
• **Comprehensive Monitoring**
  - Device Status Monitoring
  - Floor Plan View
  - Map View
  - System Status Monitoring
  - Visual Topology View
  - Wireless Client Monitoring
  - Wireless Coverage View
  - Wireless Traffic & Usage Statistics
• **Management & Maintenance**
  - Bulk Firmware Upgrade
  - Email Alert
  - Kick/Ban Clients
  - One-Click Update
  - Remote Logging
  - Seamless Migration
  - Syslog

Access Points

Models	ENS620EXT	ENS500EXT-AC
Standard	802.11ac Wave 2	802.11ac Wave 2
Frequency	2.4 & 5 GHz	5 GHz
Max. Data Rates	400 & 867 Mbps	867 Mbps
Radio Chains/Streams	2 x 2:2	2 x 2:2
Transmit Power	27 dBm (Each Band)	23 dBm
Ethernet Ports	2x Gigabit PoE	2x Gigabit PoE
Power-over-Ethernet	24V Propriety PoE	24V Propriety PoE
Power Consumption (Peak)	15W	6.3W
Antennas	4 x 5 dBi Omni-Directional SMA-Type (Detachable)	2 x 5 dBi Omni-Directional SMA-Type (Detachable)
Ingress Protection Rating	55	55

Bridges

Models	EnStation5-AC	ENS500-AC
Standard	802.11ac Wave 2	802.11ac Wave 2
Frequency	5 GHz	5 GHz
Max. Data Rates	867 Mbps	867 Mbps
Streams	2 x 2:2	2 x 2:2
Transmit Power	23 dBm	23 dBm
Ethernet Ports	2x Gigabit PoE	2x Gigabit PoE
Power-over-Ethernet	24V Propriety PoE	24V Propriety PoE
Power Consumption (Peak)	6.3W	6.3W
Antennas	19 dBi Directional (Integrated)	14 dBi Directional (Integrated)
Ingress Protection Rating	55	55

Technical Specifications

Standards

ENS620EXT

IEEE 802.11b/g/n on 2.4 GHz

IEEE802.11a/n/ac on 5 GHz

ENS500EXT-AC/ENS500-AC/EnStation5-AC

IEEE802.11a/n/ac on 5 GHz

Processor

Qualcomm® 717 MHz Quad-Core CPU

4x ARM Cortex A7

Antenna

ENS620EXT

4 x 5 dBi Omni-Directional Detachable (SMA-Type)

ENS500EXT-AC

2 x 5 dBi Omni-Directional Detachable (SMA-Type)

ENS500-AC

2 x 14 dBi Directional Integrated

EnStation5-AC

2 x 19 dBi Directional Integrated

Physical Interface

2 x 10/100/1000 Gigabit Ethernet Ports

(Link Aggregation achieves 2 Gbps Throughput)

Reset Button

LED Indicators

ENS620EXT

Power

LAN 1

LAN 2

2.4 GHz

5 GHz

ENS500EXT-AC/ENS500-AC

Power

LAN 1

LAN 2

WLAN

Signal

EnStation5-AC

Power

WLAN 5 GHz

2 x LAN

Power Source

Power-over-Ethernet: Proprietary 24V PoE

IEEE 802.11e Compliant Source

Active Ethernet (PoE)

Maximum Power Consumption

ENS620EXT 15W

ENS500EXT-AC/ENS500-AC/EnStation5-AC 6.3W

Surge Protection

Line to Line: 1 KV

Line to Ground: 2 KV

ESD Protection

Contact: 4 KV

Air: 8 KV

Wireless & Radio Specifications

Operating Frequency

ENS620EXT

Dual-Radio Concurrent 2.4 GHz & 5 GHz

ENS500EXT-AC/ENS500-AC/EnStation5-AC

5 GHz

Operation Modes

Access Point Mode (AP mode)

Client Bridge Mode (CB Mode)

WDS: WDS AP, WDS Bridge, WDS Station

Frequency Radio

ENS620EXT

2.4 GHz: 2400 MHz~2835 MHz

ENS620EXT/ENS500EXT-AC/ENS500-AC/EnStation5-AC

5 GHz: 5150 MHz~5250 MHz, 5250 MHz~5350 MHz, 5470 MHz~5725 MHz, 5725 MHz~5850 MHz

Transmit Power

ENS620EXT

2.4 GHz: 27 dBm

5 GHz: 27 dBm

ENS500EXT-AC/ENS500-AC/EnStation5-AC

5 GHz: 23 dBm

Tx Beamforming (TxBF)

Radio Chains/Spatial Stream

2x2:2

SU-MIMO

Two (2) Spatial Stream SU-MIMO up to 867 Mbps to individual 2x2 VHT40 client devices

MU-MIMO

Two (2) Spatial Stream Multi User (MU) MIMO for up to 867 Mbps to two (2) MU-MIMO capable wireless devices simultaneously

Supported Data Rates (Mbps)

ENS620EXT

2.4 GHz: Max 400

5 GHz: Max 867

802.11b: 1, 2, 5.5, 11

Supported Data Rates (Mbps) continued

802.11a/g: 6, 9, 12, 18, 36, 48, 54

802.11n: 6.5 to 400 Mbps (MCS0 to MCS15)

802.11ac: 6.5 to 867 Mbps (MCS0 to MCS9, NSS = 1 to 2)

ENS500EXT-AC/ENS500-AC/EnStation5-AC

5 GHz: Max 867

802.11a: 6, 9, 12, 18, 24, 36, 48, 54

802.11n: 6.5 to 300 Mbps (MCS0 to MCS15)

802.11ac: 6.5 to 867 Mbps (MCS0 to MCS9, NSS = 1 to 2)

Supported Radio Technologies

ENS620EXT

802.11b: Direct-Sequence Spread Spectrum (DSSS)

802.11a/g/n/ac: Orthogonal Frequency-Division Multiplexing (OFDM)

802.11n/ac: 2x2 MIMO With 2 Streams

ENS500EXT-AC/ENS500-AC/EnStation5-AC

802.11a/n/ac: Orthogonal Frequency-Division Multiplexing (OFDM)

802.11n/ac: 2x2 MIMO With 2 Streams

Channelization

ENS620EXT

802.11ac Supports Very High Throughput (VHT)—VHT 20/40/80 MHz

802.11n Supports High Throughput (HT)—HT 20/40 MHz

802.11n Supports Very High Throughput (VHT) Under the 2.4 GHz Radio—VHT (256-QAM)

802.11n/ac Packet Aggregation: AMPDU, ASPDU

ENS500EXT-AC/ENS500-AC/EnStation5-AC

802.11ac Supports Very High Throughput (VHT)—VHT 20/40/80 MHz

802.11n Supports High Throughput (HT)—HT 20/40 MHz

802.11n/ac Packet Aggregation: AMPDU, ASPDU

Supported Modulation

ENS620EXT

802.11b: BPSK, QPSK, CCK

802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM

802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM

ENS500EXT-AC/ENS500-AC/EnStation5-AC

802.11a/n: BPSK, QPSK, 16-QAM, 64-QAM

802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM

Technical Specifications

Management

Multiple BSSID

ENS620EXT

Supports 16 SSIDs (8 SSIDs per Band)

ENS500EXT-AC/ENS500-AC/EnStation5-AC

Supports 8 SSIDs

VLAN Tagging

Supports 802.1q SSID-to-VLAN Tagging

Management VLAN

ENS620EXT

Cross-Band VLAN Pass-Through

ENS500EXT-AC/ENS500-AC/EnStation5-AC

VLAN Pass-Through

Spanning Tree

Supports 802.1d Spanning Tree Protocol

QoS (Quality of Service)

Complaint With IEEE 802.11e Standard

WMM

SNMP

v1, v2c, v3

MIB

I/II, Private MIB

Management Features

Deployment Options

Stand-Alone (Individually Managed)

Managed Mode (w/ezMaster/Neutron Series Switch)

Stand-Alone Management Features

Auto Channel Selection

Auto Transmit Power

Wireless STA (Client) Connected List

Guest Network

Fast Roaming (802.11k & 802.11r)

Pre-Authentication (802.11i, 802.11x)

PMK Caching (802.11i)

RSSI Threshold

Traffic Shaping

VLANs for Access Point – Multiple SSIDs

Backup/Restore Settings

Auto Reboot

E-Mail Alert

Site Survey

Save Configuration as Users Default

Control Features

Managed Mode (w/ezMaster/Neutron Switch)

Distance Control (ACK Timeout)

Control Features continued

Multicast Supported

Wi-Fi Scheduler

Client Traffic Status

RADIUS Accounting

Power Save Mode (U-APSD Support)

CLI Support

HTTPS

Wireless Security

WEP Encryption 64/128/152 bit

WPA/WPA2 Enterprise (WPA-EAP using TKIP or AES)

Hide SSID in Beacons

MAC Address Filtering, Up to 32 MACs per SSID

Wireless STA (Client) Connected List

SSH Tunnel

Client Isolation

Wireless Management Features (w/ezMaster & Neutron Switch) (Available in AP Mode)

AP Auto Discovery and Provisioning

AP Auto IP Assignment

AP Group Management

Auto AP Rebooting

AP Device Name Editing

AP Radio Settings

Traffic Shaping

Fast Roaming (802.11k & 802.11r)

Pre-Authentication (802.11i, 802.11x)

PMK Caching (802.11i)

RSSI Threshold

AP Client Limiting

Client Fingerprinting

AP VLAN Management

VLANs for AP - Multiple SSIDs

Secured Guest Network

Access Point Status Monitoring

Wireless Client Monitoring

Email Alert

Wireless Traffic & Usage Statistics

Real-Time Throughput Monitoring

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

Intelligent Diagnostics

Kick/Ban Clients

Wi-Fi Scheduler

Temperature Range

Operating: -4º F~140º F (-20º C~60º C)

Storage: -22º F~176º F (-30º C~80º C)

Humidity (non-condensing)

Operating: 90% or less

Storage: 90% or less

Waterproof

IP55-Rated Enclosure

Dimensions & Weights

ENS620EXT

Weight: 1.11 lbs. (504 g)

Width: 7.54" (191.6 mm)

Length: 4.49" (114.3 mm)

Height" 1.88" (47.7 mm)

ENS500EXT-AC/ENS500-AC

Weight: 0.65 lbs. (0.29 kg)

Width: 3.93" (100 mm)

Length: 7.20" (185 mm)

Height" 1.08" (27 mm)

EnStation5-AC

Weight: 1.11 lbs. (460 g)

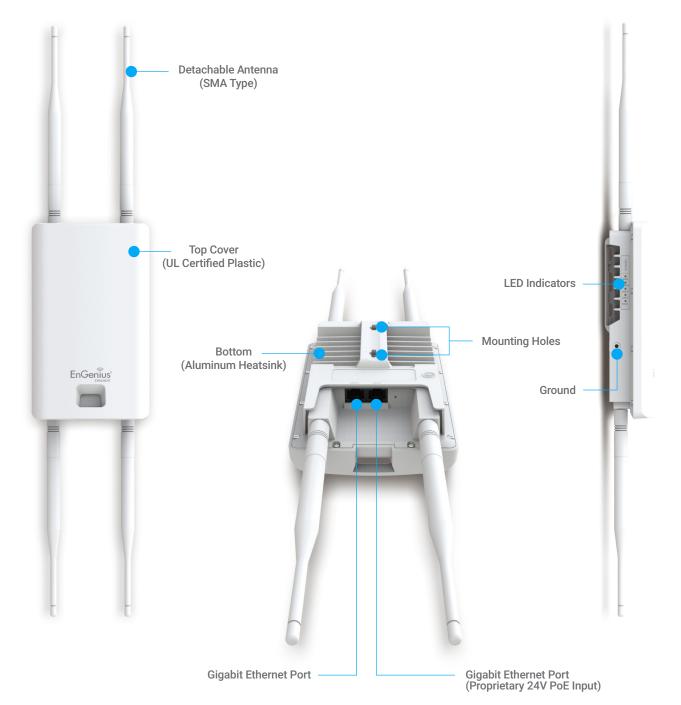Depth: 7.48" (190 mm)

Height: 1.49" (38 mm)

Package Contents

ENS620EXT

ENS620EXT Outdoor Access Point

Power Adapter (48V/0.8A)

PoE Injector (EPA2410GP)

Pole Mounting Brackets

Wall-Mount Screw Set

(4) 5 dBi SMA Antennas

RJ-45 Ethernet Cable

Quick Installation Guide

ENS500EXT-AC

ENS500EXT-AC Outdoor Access Point

PoE Adapter (EPA2406GP)

Pole-Mounting Brackets

Wall-Mount Screw Set

(2) 5 GHz 5 dBi SMA Antennas

Power Cord

Quick Installation Guide

ENS500-AC

ENS500-AC Outdoor Bridge

PoE Adapter (EPA2406GP)

Pole-Mounting Brackets

Wall-Mount Screw Set
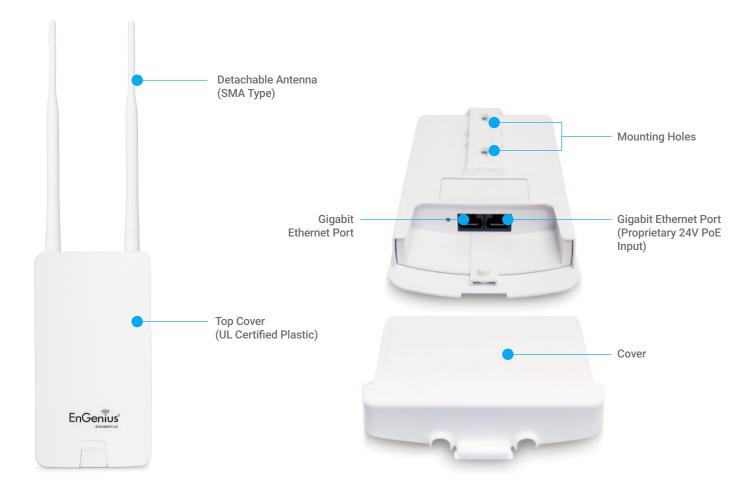
Power Cord

Quick Installation Guide

Technical Specifications continued

Package Contents continued
EnStation5-AC
EnStation5-AC Outdoor Wireless Bridge
PoE Adapter (EPA2406GP)
Pole-Mounting Brackets
Wall-Mount Screw Set
Power Cord
Quick Installation Guide

Certifications
FCC, CE

Warranty
1-Year Standard

ENS620EXT Outdoor Access Point

Detachable Antenna
(SMA Type)

Top Cover
(UL Certified Plastic)

Bottom
(Aluminum Heatsink)

LED Indicators

Mounting Holes

Ground

Gigabit Ethernet Port

Gigabit Ethernet Port
(Proprietary 24V PoE Input)

EnGenius
ENS620EXT

ENS500EXT-AC Outdoor Access Point

Detachable Antenna
(SMA Type)

Mounting Holes

Gigabit
Ethernet Port

Gigabit Ethernet Port
(Proprietary 24V PoE
Input)

Top Cover
(UL Certified Plastic)

Cover

ENS500-AC Outdoor Bridge

Mounting Holes

Gigabit
Ethernet Port

Gigabit Ethernet Port
(Proprietary 24V PoE
Input)

Top Cover
(UL Certified Plastic)

Cover

EnStation5-AC Outdoor Bridge

UV Resistant Cover

360° 3D-Array Rotation

Sealing Nut

LED Indicators
(Power, Wireless & LAN Status)

Wall/Pole
Mounting Bracket

Port Cover

Reset Button

PoE Port

Gigabit Ethernet &
Data Port

Bracket

Rotating Hinge

Sealing Nut

Lock Washer

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.

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