

OW-400 4N00-MESH

eXtreme High Power WiFi6 Dual-Radio MAN-MESH
Outdoor PoE Bridge/AP

EAN Code : 4712757151435



Introduction

CERIO's OW-400 4N00-MESH using the new generation of WiFi6 (802.11ax) dual-core 1Ghz high-computing processing chip with the latest MU-MIMO and OFDMA technology, provides higher efficiency and transmission speed. It's a WiFi6 11ax 2.4/5GHz dual-band wireless AP and supports a maximum transmission rate of up to 2400Mbps on the 5GHz band and a maximum transmission rate of up to 574Mbps on the 2.4GHz band. It's an AX3000 model that can simultaneously provide wireless signals in the 2.4GHz and 5GHz frequency bands. **The system operation mode supports MAN-MESH Mode as the main mode, Access Point Mode (includes Hotspot Portal Authentication, Pure AP Mode, and AP + WDS Mode), Control Access Point Mode (CAP Mode), Client Bridge + Repeater Mode, WISP / CPE Repeater Mode etc.**

OW-400 4N00-MESH provides IP67 weather-proof durable design. Supports dual-ports IEEE 802.3at (PoE) function, allowing both power and data to be provided through CAT5e cabling. Bundle with MAN-MESH Intelligent software core. It's the perfect solution for backhaul deployment of Semi-Mobile mesh network, such as data transmission of public transport system (ex. Railways, Ships, Bus, MRT, Gondola, etc.), through this smart wireless mesh network, which can collect and transmit information in real-time, so that control center can do security monitoring and management. This MAN-MESH equipment can be connected to any Ethernet device to easily build short- or long-distance mesh network applications at the edge site, such as Warehouse and factory incoming/outgoing vehicle, construction area safety monitor management and so on.

Auto-Configuring Mesh Network

The **Layer3 Mesh Backbone Auto Link Optimization** which provides user friendly and simpler setting configuration. It can extend the wireless network to areas that are difficult or expensive to connect via Ethernet cabling. CERIO MAN-MESH provides **Intelligent WiFi Mesh technology**, Meshed APs self-configure and establish a high-performance, robust, and resilient network automatically, without any need for manual intervention or provisioning. Provide a full coverage wireless network without dead ends, no matter where you are, you can automatically and seamlessly connect to the optimal wireless signal at any time.

Self-Healing Networking with Per-Flow Optimization

This technology can prevent network paralysis from occurring. Each node in the WiFi Mesh Network is connected and communicates with each other. When a node in a mesh network environment is failure through a wired or wireless interface, Mesh will dynamically reconfigure and find the best link and automatically detect and forward traffic to other node link AP devices with Internet network connectivity. To ensure that the connection in the network can continue normally.

Multi-Channel Routing Protocols

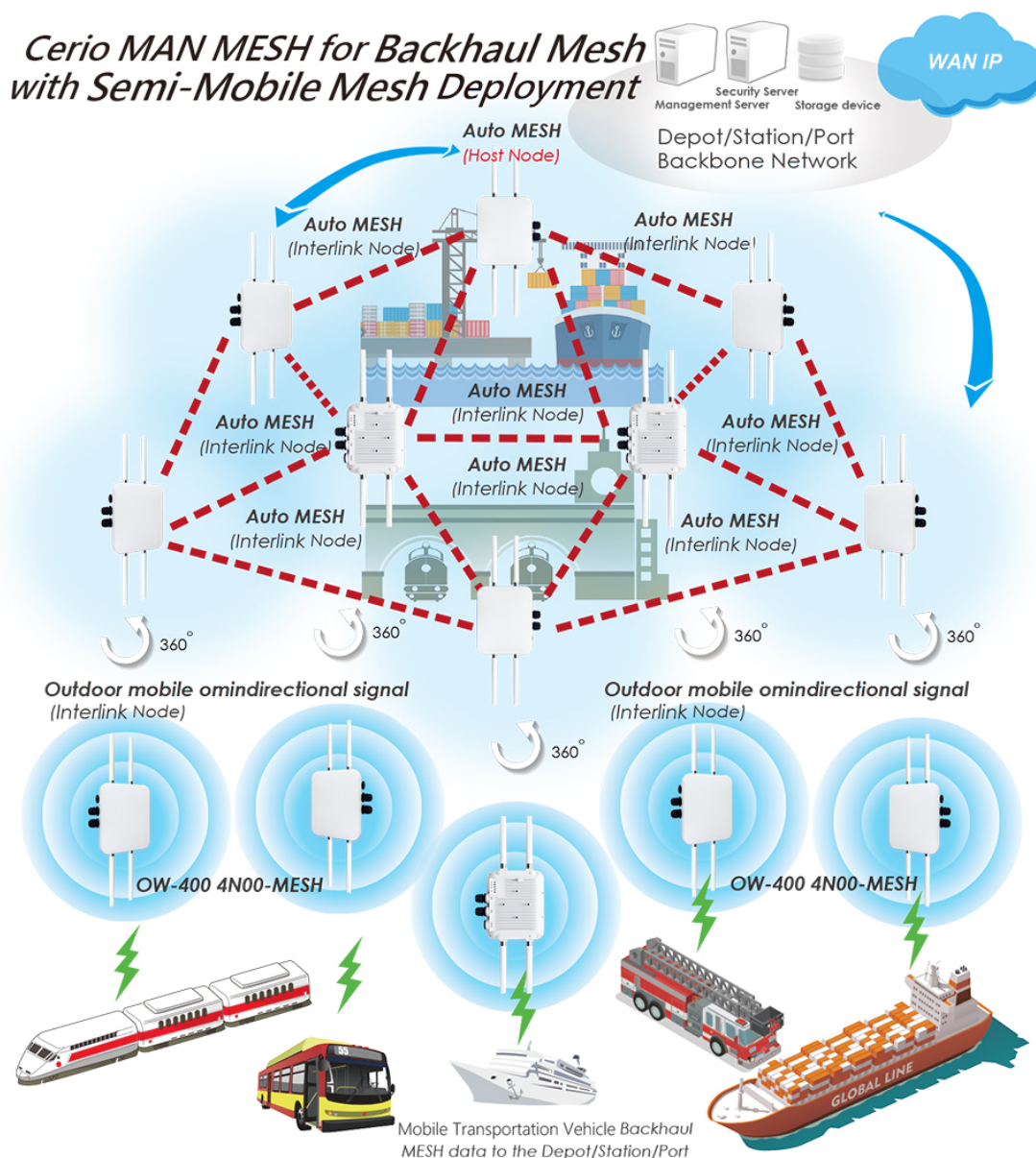
Provides **Layer3 Intelligent wireless mechanism** and advanced proprietary routing protocols and algorithms continuously evaluate link performance by measuring a variety of factors, including signal strength, throughput, link cost, interference, and frame reception rates. Wireless APs take measurements individually and work together with neighboring APs to optimize overall capacity and client throughput. APs route traffic over different channels as needed to minimize per-hop performance degradation and maximize client performance.

Support MAN-MESH Multi-Channel WAN Backup

When using LAN wired connecting multiple MAN-Mesh APs of WAN for configuration, Mesh will dynamically reconfigure and find the best link through the WAN / Internet route, automatically select one of the best available WAN to access the uplink connection. Therefore, a backup WAN architecture is generated for multiple paths of multiple WANs in the environment. When any WAN in the environment is interrupted, it can be backed up to ensure the Internet connection.

MAN MESH Core Software Mode

The CERIO MAN MESH Intelligent Core Software Mode provides Layer3 Mesh Backbone Auto Link Optimization, it's using simpler and smartest way to improve the connection quality of the wireless network which let a large number of users in the vast space can enjoy a stable quality wireless network. In addition, each node in the mesh wireless network system can be an independent, providing fast connection and a more stable wireless network. With Intelligent WiFi Mesh Topology, the wireless node will communicate with each other and can be set automatically, which greatly reduces the complicate setting procedure. The MAN-MESH Layer3 Mesh Backbone Auto Link Optimization also provides, when one of the wireless nodes fails or disconnected, the other wireless node in the mesh network can communicate with each other and recover the network connection automatically. Which is an excellent solution for infrastructure, surveillance, IOT and in-train backhaul. And for emergencies, rapidly deployable and robust communications between each member when emergencies are involved in difficult operations inside buildings, towers, hard-hit disaster areas or surrounded in forest fires.



MAN-MESH Highlight Features

- The Mesh Network no geographical limitations : Provides a mesh environment including stationary surveillance or node terminal device access by wired, mobile user wireless access and point-to-point connection to AP stations in remote areas to extend mesh links.
- In addition, it supports Mesh AP backbone interconnection capabilities, and it can be multi-function wireless AP station for wireless clients access.
- The wireless AP supports 2.4GHz Radio0 and 5GHz Radio1, each radio support 16 groups of Multiple-VLAN (ESSID), total supports up to 32groups of Multiple-VLAN (ESSID).
- Support virtual network tagging function (VLAN Tag), each group can use different VLAN tag.
- Support multi-node smart link capability, automatic detection of each node, network optimization and network self-healing function, always ensure that the network connection will not be interrupted at any place. It can improve work efficiency and deploy network connection quickly, very convenience and saving time.
- Real-Time Environment Monitoring and Routing : Constantly scan the air to monitor mesh link. If a better link is available, it will automatically re-route the mesh path to optimum mesh network quality.
- Supports routing and across-network interface interworking IP address identification. Through the IPv4 Bridge function, the different network access interfaces of each MAN-Mesh AP under the routing layer include wired LAN, wireless Radio and other IP addresses of each different interface can access each other. And support Static Peer setting. For example, LAN PC server and other devices can be fixed in a network environment with multi routing links and can be reliably accessed.
- DHCP server and DHCP Relay (DHCP) relay service in the same or different network segment, allows DHCP data to be successfully exchanged between the DHCP client and the DHCP server.
- MAN Mesh network interconnection security: support AES 128bit encryption function, provide input 8 ~ 32 characters, Each MAN-Mesh AP connects through secure encrypted transmission each other.
- NAT network IP address translation function designated as a WAN side by wire or wireless interface, When Mesh network is connecting, the administrator can enable this NAT application function for a specific MAN-Mesh node host in the environment to construct a more diverse and flexible mesh network environment.
- Supports intelligent routing and multi-channel selection of Auto Mesh Link function, Mesh connection between multiple channels based on signal quality, link optimization, hop-by-hop performance, transmission efficiency, etc.
- Mesh AP supports multiple Radio, each Radio supports independent Mesh AP interface settings, and supports IPv4 and IPv6 MAN-Mesh IP address format applications.
- Support host multi-hop setting, corresponding setting for available channels, through the "host node" can be found in the Mesh environment can be used in multiple fixed channels in advance, in order to create and assist other "interconnected nodes connection.
- Support MAN-Mesh Force Link priority interconnection setting, according to the MAC address designation method of MAN-Mesh equipment, set priority to specify link host MAN-Mesh AP, to make the construction of Mesh network environment more flexible and practical.
- Provides a wireless connection distance setting by quickly function, for the actual required distance to solve the complicated wireless parameter settings required for outdoor remote wireless connection.
- MAN-MESH mode supports link chart and status display functions, such as WI-FI multi-angle positioning relative IP address connection mesh node display, MAN-Mesh neighbor and routes / redistributed routes information, and each wireless Radio connecting corresponding MAC address information, connection rate and RSSI quality etc, to facilitate the administrator to grasp and understand the relevant information between each of the Mesh construction environment and each next-note Mesh.
- Through the CAP management mode, you can quickly add each MAN-Mesh host in the environment that needs to be monitored and managed. Through the device list and construction, you can quickly grasp the basic information such as the connection time and firmware version.

Software Features

MAN Mesh Wireless Feature

- Supports Location Tracking function, for the wireless client location information to the server for analysis.
- Supports auto channel scanning function, automatic scanning the most undisturbed and suitable wireless channel in the field environment
- Supports IEEE802.11f IAPP and IEEE802.11r and IEEE802.11k Fast Roaming.
- Supports wireless IGMP the v1/v2/v3 function, routing multi-cast stream to more efficiently manage media traffic.
- Provide RF on/off and scheduling function for easy control RF radio on/off time table.
- Supports hide SSID to prevent unauthorized users from intentionally accessing the wireless network.
- Supports the latest 11ax hardware device and support WEP, WPA/WPA2 /WPA3 Personal, WPA/WPA2/WPA3 Enterprise and 802.1x connection encryption methods and can register a RADIUS authentication server.
- Wireless access control list (ACL) by MAC Address.
- Client Isolation and Client Connection limitations.
- Support IEEE802.11e WMM QoS.
- The software supports the antenna adjustment mechanism, which can detect the wireless RSSI signal strength of each remote device automatically connected to the local area, which can effectively help the installer to adjust the antenna.

Network / Management

- Supports IEEE.802.1Q VLAN Tag, total up to 16 of multiple-VLANs supported, each SSID supports 802.1q VLAN Tag standards, supporting up to 4096 group VLAN Tag capability.
- Web-Based supports HTTP / HTTPS and advanced CLI via Telnet and SSH interface management functions.
- Support SNMP v1/v2c/v3, MIB II. Also supports SNMP Traps to a list of IP addresses.
- Supports remote login to management UI, firmware update, factory default reset, configuration file backup and restore. Detect connection signal, transmission rate, encryption and other information display.
- Support Ping Watchdog function, which automatically monitoring device operations and reboot of the device.
- Supports Auto reboot setting function, can schedule Auto Reboot by Hour/Daily/Weekly setting.
- Real-Time Online Users Traffic Statistic Reporting and users connection status · and support Syslog and Event log.
- Provides Traffic Monitor and Graphical GUI Status Interface for Network and Radio Overview.

Hardware Features

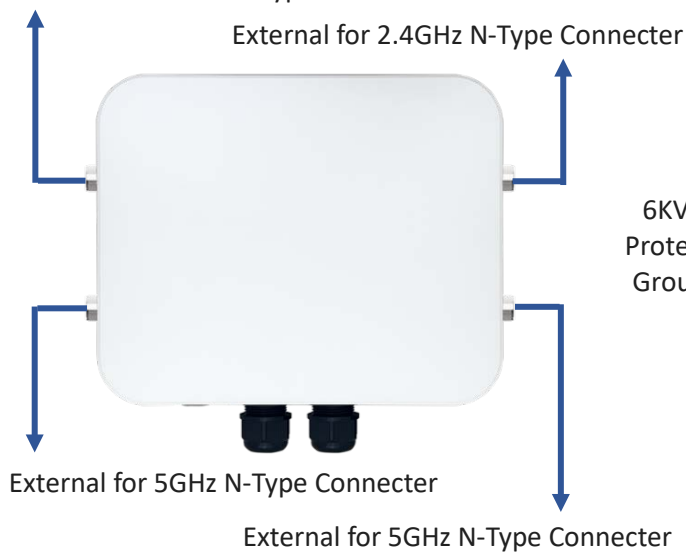
- 2.4Ghz band supports standard 802.11 bgn protocol with maximum data transfer rate of 574Mbps.
- 5Ghz band supports 802.11 an/ax wireless protocol with a maximum data transfer rate of 2400Mbps.
- 300mW at 2.4Ghz and 5Ghz Output eXtreme High Power design.
- Support 2 external N-Type connectors for 2.4GHz band and 2 external N-Type connectors for 5GHz band.
- Supports one 1G Ethernet Port and one 2.5G Ethernet Port. Both support PoE function.
- PoE supports IEEE 802.3at standard, allows PoE power and data transmission through Cat5e cabling.
- Supports IP67 weather-proof durable design. Its high-temperature resistance and corrosion-proof casing can withstand harsh environments.
- Comply with IEC61000-4-2 ESD (Electro Static Discharge) load and discharge lightning protection Conductive: 6KV; Air: 8KV.

- Hardware embedded a long-range power amplifier and high sensitivity receiver to deliver unmatched reliability and performance at large coverage application.
- Each pin of POE port with " Gas Discharge Tube (GDT) " design and supports IEC61000-4-5 standard.
- Supports 6KV lightning protection surge grounding port, and hardware reset button to factory default.
- Pressure vent (prevents internal condensation).
- Supports target wake time (Smart AP TWT) function, the device can stay in a sleep state to save power when it's not necessary to transmit.
- The OFDMA technology allowing multiple users to transmit simultaneously under different bandwidths, increasing transmission efficiency and no delay.
- 802.11ax BSS Coloring to improve service efficiency in high-density AP deployment environments.
- Supports 11ax 1024QAM, which improves the transmission efficiency higher than 256QAM.
- Built-in AES 128,256, DES/3DES, WAPI-2 hardware encryption algorithm acceleration engines.
- Supports "Hardware Watch Dog" function, to achieve automatic reconnection mechanism.

Hardware Overview

External for 2.4GHz N-Type Connector

External for 2.4GHz N-Type Connector



Aluminum Adjustable Bracket Holes

6KV Lightning
Protection Surge
Grounding Port

LED

Metal Corrosion-
Resistant Casing

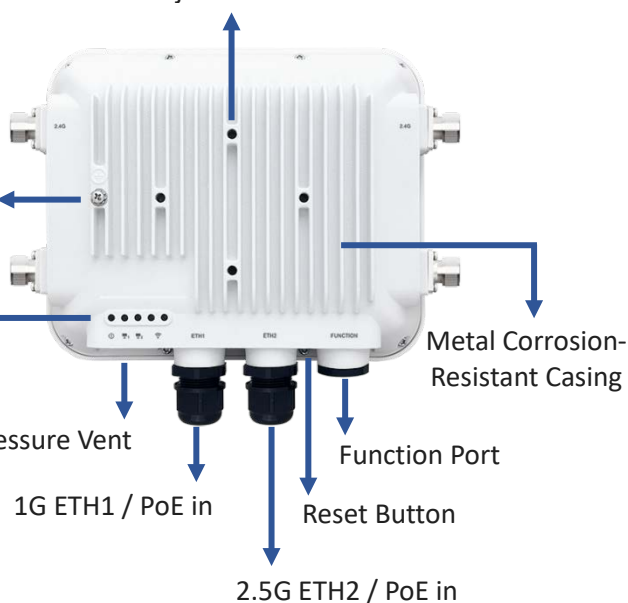
Pressure Vent

Function Port

1G ETH1 / PoE in

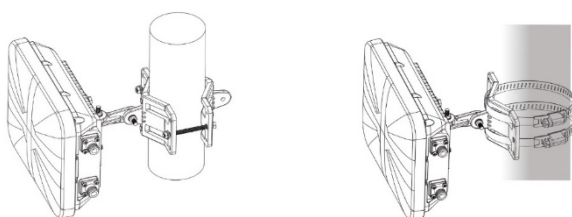
Reset Button

2.5G ETH2 / PoE in

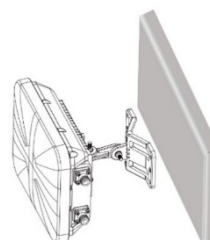


Mounting Application

Adjustable Pole Mounting



Adjustable Wall Mounting



Software

Application Software

Cerio CenOS 5.0 Software Core

Standards & Hardware Specifications

Network Standards Conformance

IEEE 802.11 p/n/a/ac/ax compliant
IEEE 802.3 / IEEE 802.3u
IEEE 802.3af/at Power Over Ethernet compliant
IEEE 802.11Q VLAN
IEEE 802.11r/k Fast Roaming
IEEE 802.11e WMM
IEEE 802.1x RADIUS
IEEE 802.3az EEE

Ethernet Configuration

ETH1 : RJ45 10/100/1000M Ethernet Port x 1
ETH2 : RJ45 10/100/1000/2500M Ethernet Port x 1
(ETH1 or ETH2: Power over Ethernet 802.3at PoE in)
Function port : RJ45 x 1

Reset Button

Reset to the factory default (Need to remove the waterproof protection screw plug)

LED Indicators

PWR (Power)	x1
ETH1 (PoE In-1)	x1
ETH2 (PoE In-2)	x1
2.4G Signal	x1
5G Signal	x1

Wireless Specifications

Data Transfer Rate

IEEE802.11b : 1 / 2 / 5.5 / 11Mbps (auto sensing)
IEEE801.11g : 6/ 9/ 12/ 18/ 24/ 36/ 48/ 54Mbps
IEEE802.11n : 400Mbps (@ 40MHz 64QAM)
IEEE802.11ac : 867Mbps (@ 80MHz 256QAM)
IEEE802.11ax : 574Mbps(@ 40MHz 1024QAM)
IEEE802.11ax : 1200Mbps(@ 80MHz 1024QAM)
IEEE802.11ax : 2400Mbps(@ 160MHz 1024QAM)

RF Spatial Streaming

2.4Ghz: (IEEE802.11ax)

SU-MIMO (2ss, 1 user), DL/UL MU-MIMO (STA mode only, 2ss), DL/ULOFDMA(4 users)

5Ghz: (IEEE802.11ax)

DL MU-MIMO for HE160 and VHT160 (2ss, 2 users), UL MU-MIMO for HE160(up to 4 users), DL/UL MU-OFDMA (up to 4 users)

Frequency Range

IEEE802.11nbg :

Supports 2.412 ~ 2.462 GHz

IEEE802.11a/an/ac/ax :

Supports 5.180 – 5.240 & 5.725 – 5.825 GHz

Channel Spacing

IEEE802.11b/g/n : 20/40MHz

IEEE802.11ax: 40/80/160MHz

Media Access Protocol

OFDMA on top CSMA / CA , Spatial Reuse / BSS Color

Modulation Method

IEEE802.11b : DSSS (DBPK,DQPSK,CCK)

IEEE802.11a/g/n : OFDM(64-QAM,16-QAM,QPSK,BPSK)

IEEE802.11ac : OFDM (256-QAM, 64,-QAM, 16-QAM, QPSK,BPSK)

IEEE802.11ax : OFDMA (1024-QAM, 256-QAM, 64,-QAM, 16-QAM, QPSK,BPSK)

Operating Channels

2.4GHz : 1-13

5GHz : 36-64, 100-140, 149-165

(Depends on configured regulatory domain)

Transmit Power Variation

2.4Ghz : Max : 24 ± 1 dBm

5Ghz : Max : 24 ± 1 dBm

Receiver Sensitivity

2.4Ghz : Max : -94 dBm

5Ghz : Max : -93 dBm

Environmental & Mechanical Characteristics

Operating Temperature

-25 °C ~ 65 °C

Storage Temperature

-40 °C ~ 85 °C

Operating Humidity

10% - 95% Non-Condensing

Storage Humidity

10% - 95% Non-Condensing

Antenna

2.4GHz : 2 N-Type Connectors for 2.4GHz Band

5GHz : 2 N-Type Connectors for 5GHz Band

Vent

Automatically adjustable Vent design

Form Factor

Supports Adjustable Wall Mounting Installed

Supports Adjustable Pole Mounting Installed

(Pole mounting diameter range 40 ~ 80 mm)

ESD

Conductive: 6KV

Air: 8KV

Surge Protection

L to L: 2KV

L to G: 6KV (EN61000-4-5) (8/20 us)

(The main unit provides a grounding port)

Power Consumption

18Watt (Max)

Power Supply

Supports Power Over Ethernet (POE 48~57V)

Input Power

IEEE 802.3at 48V~57V PoE In

Dimensions (W x D x H)

240 x 197 x 80 mm

Housing Materials

IP67 Rating / Die-Cast aluminum with Plastic Enclosure

Unit Weight

1.9kg

Production Location

TW

Certifications












CE, FCC, NCC, ROHS Compliant

Package Contents

Package Contents

OW-400 4N00-MESH Main Unit	x1
PoE Power supply Kit	x1
Adjustable Wall/Pole Mounting Bracket Set	x1
Quick Installation Guide(Chinese/English)	x2
Warranty Card	x1

Related Products

Model No.	Photo	Description
ANT-10FD		2.4GHz 2x2 Outdoor IP68 Wide Rang Directional 10dBi Panel Pole/Wall Mount Antenna
ANT-10AD		5GHz 2x2 Outdoor IP68 Wide Rang Directional 10dBi Panel Pole/Wall Mount Antenna
ANT-14AD		5GHz 2x2 Outdoor IP68 Wide Rang Directional 14dBi Panel Pole/Wall Mount Antenna
ANT-18AD		5GHz 2x2 Outdoor IP68 Wide Rang Directional 18dBi Panel Pole/Wall Mount Antenna
ANT-15AQ		5GHz 4x4 Outdoor IP68 Wide Rang Directional 15dBi Panel Pole/Wall Mount Antenna
ANT-05FN-S		2.4Ghz Outdoor thin type Omni 5dBi Plug Antenna
ANT-07AN-S		5Ghz Outdoor thin type Omni 7dBi Plug Antenna
LLMR-NNP-1M		1M N-Plug (Male) to N-Plug (Male) LLMR200 Low Loss RF Antenna Cable
LLMR-NNP-2M		2M N-Plug (Male) to N-Plug (Male) LLMR200 Low Loss RF Antenna Cable
LP-300		2.4GHz / 5GHz N-Female to N-Male Lightning Protector
POE-OSP+		1/2.5Gbps Multi Gigabit Ethernet PoE Pass-Through Outdoor Surge Protector