

# MA3100-X

## Outdoor Dual 5GHz/Single 2.4GHz Wireless Mesh Access Point & Point-to-Point Device

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### Reliable, Intelligent, and High Performance Wireless Mesh

- Patent pending, auto-discovery, auto-configure, and auto-healing POP (Predictable Optimum Path) mesh routing algorithm
- Multiple wireless radios design of backhaul mesh network eliminates co-channel interference and provides zero performance degradation across multiple hop counts
- Best network throughput of zero performance degradation and via layer 2 fast packet switching and bridging from node to node to support real time video, voice, and data applications
- Advanced real time diagnostic tool to ensure quality of mesh network at installation time
- Feature rich software supports enterprise and carrier-class applications

### Signal Locator Tool for Point to Point Connection Support

- Graphic display of signal strength in real time to support antenna pointing
- Broadcasting signal strength out of computer's speaker to facilitate antenna installation on site
- Separate Uplink and Downlink signal strength display
- Up to 50km distance

### Management and Security

- Supports SNMP v2c & Web Based browser
- Supports 128bit AES encryption on each mesh link across whole mesh network
- MeshID and multiple level administration password protection

**Providing WiFi access** to any community as large or small mesh network. The MeshAP 3100 provides users with a dependable/flexible and cost-effective network either in a small scale or constructed with long distance point-to-point mesh connection. ArrowSpan's MeshAP 3100 provides WiFi access using wireless mesh technology with plug-n-play easy installation, and allows carriers and service providers to deliver a true wireless network over a good size hotzone or large geographical areas with point to point connection support.

**A Mesh Link is a true wireless connection** between any two MeshAP units. ArrowSpan MeshAP 3100 will automatically discover its neighboring MeshAP 3100 and interconnect all the MeshAP units together to form a bigger coverage wireless network.

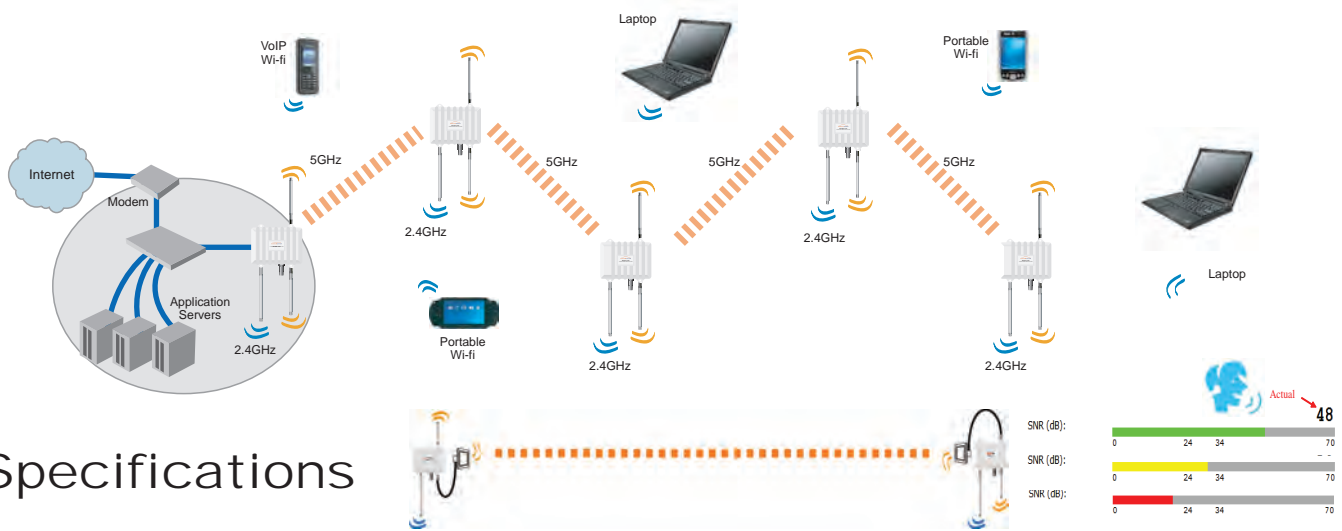
**A Mesh Link can also be a long distance point to point link.** **Signal Locator** is a graphical display with beeping indicating signal strength of single or multiple stations to support pointing directional antenna at installation with optimum signal quality result of up to 50km.

**MeshAP 3100 implements Layer 2 mesh routing** which provides excellent network performance and is fully compatible with existing network equipment and applications. The MeshAP 3100 is able to support high-bandwidth and low latency applications like real-time video and voice.

**Predictable Optimum Path (POP)** routing algorithm creates a MeshAP 3100 based WiFi mesh network with the best throughput, reliable mesh link, and self-discovery/self-configuration/self-healing benefits. The algorithm's human-like intelligence examines the network and makes appropriate connections among MeshAPs at system boot time or when the meshlink is broken due to obstacles or individual node problems.

**High throughput Mesh Network** is achieved by a non-blocking and no-interference design for client and backhaul traffic. The MeshAP 3100 multi-radio and multi-channel architecture eliminates the wireless signal interference and traffic conflict problems that exist on many other mesh network products.

**SNMP v2c and web-based (HTML) management interface** enables both professional and non-technical users to easily handle network management and maintenance tasks for the MeshAP units. The "Point and Click" browser interface permits users to monitor node condition, link quality, traffic flow, and event logs of the MeshAP units on the mesh network. The web-based Topology function also allows Network administrators to easily configure, update, and monitor every MeshAP node on the mesh network. SNMP private MIBs are also available for ArrowSpan NMS manager or 3rd party manager.



## Specifications

### Product Model 3100-X

### Wireless

#### Backhaul Radio

**Number of Radio:** 2  
**Frequency:** 5.8GHz ISM radio band  
**Frequency Bands:** 5.725 - 5.850 GHz/2.4GHz (optional)  
**Channel Size:** 20MHz/40MHz  
**Modulation:** OFDM(64-QAM, 16-QAM, QPSK, BPSK)  
**Data Rates:** 6, 9, 12, 18, 24, 36, 48, 54Mbps (x2 trunk optional)  
**Tx Radio Power:** up to 27dBm (avg)\*

**Receiving Sensitivity:**  
 -94dBm@6Mbps; -82dBm@36Mbps; -78dBm@48Mbps; -74dBm@54Mbps

**Antenna Connector:**  
 (2x) N-type outdoor waterproof connector

#### Access Point Radio

**Number of Radio:** 1  
**Standards:** IEEE 802.11g, 802.11b  
**Media Access Protocol:** CSMA/CA with ACK  
**Frequency:** 2.4GHz ISM radio band  
**Frequency Bands:** 2.4 - 2.462 GHz  
**Modulation:**  
 802.11g: OFDM(64-QAM, 16-QAM, QPSK, BPSK)  
 802.11b: CCK(11, 5.5MHz), DOPSK(2Mbps), DQPSK(1Mbps)

**Data Rates:**  
 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps  
 802.11b: 1, 2, 5.5, 11Mbps

**Tx Radio Power:** up to 27dBm (avg)\*  
**Receiving Sensitivity:**  
 -82dBm @36Mbps; -78dBm @48Mbps; -74dBm @54Mbps

**Channels:**  
 802.11g: USA, Canada, Saudi Arabia, Taiwan: 11  
 Most European countries, China: 13  
 France: 4  
 Japan: 14  
 802.11b: USA, Canada, Saudi Arabia, Taiwan: 11  
 Most European countries: 13  
 France: 4  
 Japan: 14

**Antenna & Connector:**  
 (1x) 8dbi 2.4GHz omni directional antenna  
 (1x) N-type outdoor waterproof connector

### Mesh Network Throughput

Up to 30Mbps wireless mesh node to node throughput at 5th hop counts\* at any type of topology  
 Over 50Mbps at x2 speed for point to point trunk link

### Operating Range

Backhaul Wireless Mesh  
 Node-to-node Distance: up to 50km

802.11g (3100-X only)  
 Client AP: 150m(492ft)@54Mbps  
 500m(1640ft)@6Mbps

### Software Feature

#### Security & Encryption

64/128/152bit WEP encryption  
 WPA/WPA-2 (Hardware Accelerated, 128bit AES)  
 Radius support  
 Multi-level Mesh operator username/password  
 Mesh ID protection  
 MAC address based filtering

#### AP Features (3100-X only)

Up to 16 separate SSID/VLAN  
 WMM  
 User privacy on AP and across whole mesh network  
 QOS, VLAN, 802.1Q  
 SSID Broadcast enable/disable  
 AP setting synchronization to Mesh Manager control  
 Syn/non-Syn SSID field  
 User MAC list, SNR, Tx/Rx count, Error count  
 Auto-channel assignment

#### Wireless Mesh RF Control

Tx Power Control - Settable Tx levels to adjust coverage cell size  
 Automatic / Manual Channel Selection  
 Automatic / Manual Mesh node selection  
 Self-discovering / Self-configuring / Self-routing / Self-healing Mesh Link

#### P2P and P2MP Wireless Signal Locator Tool

Search available remote wireless signals and their strengths  
 Support setting of optimum pointing direction of directional antenna  
 Graphic display and voice broadcast of signal strength

#### Management

Web based (HTML) GUI Management & SNMP v1/v2c, Private MIB  
 Multiple level & priority administration login security  
 Topology and log  
 Fail-safe IP  
 Fail-safe Hidden BSSID  
 DHCP Client IP  
 NTP time server  
 IP based router alive detection  
 Remote software upgrade and settings  
 Software RESET button to factory default  
 Mesh Link quality diagnostic tool - Retry, SNR/RSSI, Noise Floor, Speed

### Hardware Specification

#### Network Port

(1) 10/100Mbps, IEEE802.3, IEEE802.3U  
 Auto crossover Ethernet WAN Port, waterproof connector, RJ-45

#### Power

Power Interface: POE  
 Input: 48VDC 380mA  
 Power consumption: typical 12W  
 Power Supply Input to Adapter: 110V-240V

#### Environment Conditions

Operating Temperature: -40°F to 149°F (-40°C to 65°C)  
 Industrial Class CKT Design: -40°F to 185°F (-40°C to 85°C)  
 Storage Temperature: -50°F to 158°F (-58°C to 70°C)  
 Humidity: 95% maximum relative humidity, non-condensing

#### Physical Specifications

Dimension: 21.2cm x 18.4cm x 5.7cm  
 Weight: 1.5kg

#### Enclosure

Rating: IP66 water proof  
 Vertical/Horizontal mounting kit

#### Regulatory Compliance

Certification: NCC, FCC Part 15 Class B, ETSI EN 300328, ETSI EN 301893, IEC68-2-64, IEC 68-2-11, IEC 61000-4-2 class 2  
 (Please contact ArrowSpan for other Certifications)