



MeshMAX –  
Supports WiMAX, Wi-Fi Mesh and Wi-Fi

### APPLICATIONS

- Security and Surveillance**  
 Wireless solutions for bandwidth-intensive and high definition IP-surveillance cameras located at important city and transportation infrastructure, such as airports, bridges and trains
- Metropolitan Area Networks**  
 Secure and reliable backhaul of Wi-Fi Mesh traffic
- Enterprise**  
 Lowers infrastructure costs by not requiring Ethernet cabling to each access point.
- Mobile Hot Spot**  
 On demand entertainment and broadband access solutions for public transportation and local businesses
- Triple Play**  
 Network operator can deliver bundle of IPTV, VoIP and Internet access to subscribers through broadband wireless connection

<b>PRODUCT MODELS</b>	9200-XX MeshMAX 5054WM Tri-radio, WiMAX subscriber and Wi-Fi Mesh access point																								
	9201-XX MeshMAX 5054W Tri-radio, WiMAX subscriber and Wi-Fi access point																								
<b>RF MODULATION AND OVER THE AIR DATA RATES</b>	<b>OFDM (Orthogonal Frequency Division Multiplexing)</b> <table border="1"> <thead> <tr> <th></th> <th>5GHz band</th> <th>2.4GHz band</th> </tr> </thead> <tbody> <tr> <td>BPSK</td> <td>6 and 9 Mbps</td> <td>6 and 9 Mbps</td> </tr> <tr> <td>QPSK</td> <td>12 and 18 Mbps</td> <td>12 and 18 Mbps</td> </tr> <tr> <td>16-QAM</td> <td>24 and 36 Mbps</td> <td>24 and 36 Mbps</td> </tr> <tr> <td>64-QAM</td> <td>48 and 54 Mbps</td> <td>48 and 54 Mbps</td> </tr> </tbody> </table> <b>DSSS (For 2.4GHz radio only)</b> <table border="1"> <tbody> <tr> <td>DBPSK</td> <td>N/A</td> <td>1 Mbps</td> </tr> <tr> <td>DQPSK</td> <td>N/A</td> <td>2 Mbps</td> </tr> <tr> <td>CCK</td> <td>N/A</td> <td>5.5 and 11 Mbps</td> </tr> </tbody> </table>		5GHz band	2.4GHz band	BPSK	6 and 9 Mbps	6 and 9 Mbps	QPSK	12 and 18 Mbps	12 and 18 Mbps	16-QAM	24 and 36 Mbps	24 and 36 Mbps	64-QAM	48 and 54 Mbps	48 and 54 Mbps	DBPSK	N/A	1 Mbps	DQPSK	N/A	2 Mbps	CCK	N/A	5.5 and 11 Mbps
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<b>WIRELESS PROTOCOL</b>	WORP (Wireless Outdoor Protocol) for subscriber backhaul 802.11a, 802.11b and 802.11g for Wi-Fi Access Proxim ORINOCO Mesh Creation Protocol (OMCP) for mesh backhaul extension																								
<b>BANDS SUPPORTED</b>	5.15 - 6.08 GHz for WORP Radio 5.15 - 5.85 GHz and 2.412 - 2.472 GHz for Mesh and Wi-Fi radios																								
<b>CHANNEL BANDWIDTH</b>	5,10 and 20 MHz for WORP Radio 20MHz for Mesh backhaul and Wi-Fi Access Infrastructure																								
<b>DEVICE INTERFACE</b>	<b>Wired Ethernet</b> Auto-sensing 10/100BASE-TX Ethernet  <b>Antenna Connector</b> 1 Standard Type-N Female 5 GHz Mesh and Wi-Fi radio 1 Standard Type-N Female 5 GHz WiMAX radio 1 Standard Type-N Female 2.4 GHz Wi-Fi radio																								
<b>NETWORK ARCHITECTURE TYPE</b>	Infrastructure																								
<b>TRANSMIT POWER SETTINGS</b>	5.0GHz : +18dBm 2.4GHz: +20dBm Output Power Values will have a tolerance of +/- 1.5 dB Output Power Attenuation: 0 – 12 dB, in 1 dB steps																								
<b>SOFTWARE SPECIFICATIONS</b>	<b>Key Features:</b> <ul style="list-style-type: none"> <li>• WORP (Wireless Outdoor Protocol)</li> <li>• Dynamic Data Rate Selection</li> <li>• Transmit Power Control</li> <li>• Antenna Alignment</li> <li>• Integrity Check for Software Upload</li> <li>• 5, 10, and 20 MHz channels</li> </ul> Satellite Density <ul style="list-style-type: none"> <li>• Dynamic Frequency Selection</li> </ul> Redundancy <ul style="list-style-type: none"> <li>• Spanning Tree (802.1D)</li> </ul> Bridging and Routing <ul style="list-style-type: none"> <li>• Bridge (802.1d)</li> <li>• IP/ RIPv1 (RFC 1058)</li> <li>• IP/ RIPv2 (RFC 1388)</li> <li>• CIDR (RFC 1519)</li> <li>• ICMP (RFC 792)</li> <li>• IP (RFC 791)</li> <li>• ARP (RFC 826)</li> </ul> Filtering <ul style="list-style-type: none"> <li>• Ethernet protocol (Ethertype)</li> <li>• Static MAC</li> <li>• Storm threshold</li> <li>• IP address</li> <li>• Broadcast protocol</li> </ul> Services <ul style="list-style-type: none"> <li>• DHCP Server (RFC 2131)</li> <li>• DHCP Client (RFC 2131)</li> <li>• Bi-Directional Bandwidth Control</li> </ul>																								

**SOFTWARE SPECIFICATIONS (CONT'D)**

VLAN

- 802.1Q VLAN tagging and filtering support
- Transparent passing of 802.1Q-compliant VLAN tagged frames

QOS

- Asymmetric bandwidth support
- Packet Classification capabilities – 801.1D/802.1Q/802.1p priority; IPTOS; VLAN ID; IP Source/Destination Address; Source/Destination port; Ethernet Source Destination Address; IP Protocol and Ethertype
- Scheduling – Best Effort; Universal Grant Services; per service flow scheduling; priority, jitter and latency control for voice, video and data; min/max bandwidth enabling

Security Features

- MAC Authentication
- Radius MAC Access Control
- WEP/AES-OCB encryption
- RADIUS (RFC 2138)

Mobility

- Subscriber Roaming

Services

- NAT (RFC 3022)
- DHCP Relay (RFC 2131)

Local Monitoring

- Serial CLI

Remote Monitoring

- Telnet CLI
- HTTP
- TFTP
- SNMPv1, SNMPv2
- MIB-II, Proxim MIBs, Bridge MIB, RIPv2 MIB, Etherlike MIB

**Mesh and Wi-Fi Features:**

Authentication

- 802.1X support including PEAP, EAP-TLS, EAP-TTLS, EAP-SIM, and other EAP methods that conform to RFC 3748 to yield mutual authentication and dynamic per-user, per-session encryption keys
- RADIUS-based MAC address authentication
- Dynamic MAC address control list, automatically updated without rebooting AP

Encryption

- 802.11i support for CCMP/AES keys of 128 bits (WPA2)
- TKIP encryption
- WEP keys of 64 and 128 bits
- AES encryption

Message Authentication

- 802.11i AES message authentication with 128 bit keys
- TKIP with 128 bit Michael Message Integrity Check

Intrusion Detection

- Rogue AP and client detection
- Detect switch port of rogue access point when used in conjunction with ProximVision™
- Detect MIC intrusion attacks

802.11 MAC level functionality

- Multiple SSID and BSSID
- Auto Channel Select
- Dynamic Frequency Selection (DFS)
- 802.11d support
- Transmit power control
- QoS support for mesh backhaul and access
- Closed system
- Channel Blacklist
- Turbo mode
- Super mode

Bridging and Filtering

- IEEE 802.1d Bridging
- VLAN Support
- WDS Relay
- Protocol Filtering
- Modified Proxy ARP support
- Multicast/Broadcast Storm Filtering
- TCP/UDP Port Filtering
- Intra-BSS Clients blocking
- Packet Forwarding
- VPN filtering

SOFTWARE SPECIFICATIONS (CONT'D)	Network Layer
	<ul style="list-style-type: none"> <li>• DHCP Client</li> <li>• DHCP Server</li> <li>• DHCP Relay Agent</li> <li>• Inter Access Point Protocol (IAPP)</li> <li>• Link Integrity</li> <li>• Syslog</li> <li>• RADIUS Authentication</li> <li>• RADIUS Accounting Support</li> <li>• DNS Client</li> <li>• SNTP</li> <li>• TFTP Client</li> <li>• Telnet Server</li> <li>• HTTP Server</li> <li>• SNMPv1/SNMPv2/SNMPv3</li> <li>• Scan and Change</li> </ul>
	Remote Management
	<ul style="list-style-type: none"> <li>• SNMP v1; SNMP v2c and SNMP v3</li> <li>• MIBs Supported: ORINOCO; rfc1213; rfc1643; 802.11i-D3; IANAifType-MIB; MIB802</li> <li>• DHCP</li> <li>• Telnet</li> <li>• HTTP</li> <li>• TFTP</li> <li>• BootP</li> </ul>
STATUS LEDS	Secure Configuration Support
	<ul style="list-style-type: none"> <li>• SNMPv3</li> <li>• HTTPS</li> <li>• SSH</li> <li>• RADIUS Based Management Access authentication</li> <li>• Encrypted storage for security and management parameters</li> </ul>
	Two indicators on the RJ-45 connector to indicate power/Ethernet traffic
	RS-232 Serial port
LOCAL CONFIGURATION SUPPORT	<ul style="list-style-type: none"> <li>• RJ11 port built-into the unit</li> <li>• DB9 Female via a converter (included)</li> </ul>
ENVIRONMENTAL	Water and Dust Proof
ELECTRICAL	<ul style="list-style-type: none"> <li>• NEMA4</li> </ul>
	POE Power Injector
	<ul style="list-style-type: none"> <li>• Custom Power over Ethernet (802.3af compatible)</li> <li>• Input: Voltage 110 to 250 VAC (47-63Hz)</li> <li>• Output: 48V @ 420mA MAX (injected into the Cat-5 Cable)</li> <li>• Pin for reset to factory defaults</li> </ul>
	AC Power Support - 110/240 VAC light pole power tap (purchased separately)
DIMENSIONS	Packaged: 14.57 x 13.70 x 8.19 in (370 x 348 x 208 mm) Unpackaged: 10.5 x 10.5 x 3.25 in (267 x 267 x 83 mm)
WEIGHT	Packaged: 12 lbs (5.44 kg) Unpackaged: 5.5 lbs (2.49 kg)
ENVIRONMENTAL OPERATING	<ul style="list-style-type: none"> <li>• -35° to 60°C</li> <li>• 100% relative humidity (non-condensing)</li> <li>• Wind loading: 125mph</li> </ul>
STORAGE	<ul style="list-style-type: none"> <li>• -55° to 80°C (-41° to 176° Fahrenheit)</li> <li>• 100% humidity</li> </ul>
PACKAGE CONTENTS	<p>One MeshMAX 5054WM Unit or One MeshMax 5054W Unit            One wall/ pole mounting bracket            One Power-Over-Ethernet injector and power cord            One Ethernet cable weather-proof plug            One Cable termination kit            One Serial Y-cable for local configuration            One Installation CD-ROM with Software and Documentation</p>
MTBF	100,000 hours
WARRANTY	<p>One year (Parts and Labor)            Extended Warranty and Enhanced Service and Support options available with ServPak</p>

