Tsunami® 8200 Series
Engineered to deliver superior value with high performance
Introduction

Ultrafast Connectivity with Unparalleled versatility

Evolving from the field proven Tsunami® 8000 Series, Proxim addresses the requirement for a versatile and a high performance wireless solution, with the Tsunami® 8200. The Tsunami® 8200, comprising of point-to-point (PtP) and point-to-multipoint (PtMP) radios operable at 4.900-5.925GHz range, delivers data rates of upto 300 Mbps and offers excellent spectrum flexibility with high power transmission capable of 25.8 dBm Tx power for extended coverage.

Unique from its very core, the foundation of Tsunami® 8200 radios is built on Proxim’s proprietary Wireless Outdoor Routing Protocol - WORP®, which is a reliable, secure and efficient protocol that optimizes the performance of multi-play outdoor wireless Point-to-Point (PtP) and Point-to-Multipoint (PtMP) 8200 links using packet radio technology. The Tsunami® 8200 additionally leverages the advantages of OFDM, 3x3 MIMO radio innovations to provide nLoS functionality and QoS class of service for delivering voice, video and data applications. Tsunami® 8200 is also enabled with GPS synchronization feature that reduces self interference, improves channel reusability, and ensures predictable performance even in dense environments.

With easy-to-use management tools, flexible channel features and superior scalability, the Tsunami® 8200 series is an ideal solution for enterprises, service providers and government organizations with requirements of all kinds, from last mile broadband wireless access (BWA) to wireless video surveillance and more.
Features

High Performance

Superior nLoS: The 8200 Series offers 3x3 MIMO which enable stronger Non-Line-Of-Sight (nLoS) link capabilities compared to other products in the market that support only 2x2 MIMO.

Seamless Roaming: With Proxim’s proprietary FastConnect, 8200 SUs continuously monitor and connect to a BSU with a better signal strength while mobile. The 8200 with the help of FastConnect is able to establish unparalleled handoff times and support delay-sensitive applications.

Gigabit Ethernet Port: The Tsunami® 8200 features dual Gigabit Ethernet ports which allow heavier bandwidth intensive applications, in comparison to other products in the market which support on 10/100Mbps Ethernet Ports.

High Transmission Power: High power radio capable of up to 25.8dBm Tx power to extend the range and coverage.

Ultra Fast: Point to Multipoint and Point to Point solution that can deliver 300Mbps data rates.

Extremely Reliable

Interference Mitigation: Advance interference mitigation features such as GPS sync, ATPC, Noise filtering, DDRS etc. allow Tsunami® 8200 radios to neutralize both self and ambient interference to provide consistent throughputs even in the most hostile RF environments.

99.995% Service Availability: The overall performance or reliability of a communication system is verified in terms of its “availability” Proxim’s Tsunami® 8200 offers 99.995% reliability.

Bandwidth Control: Existing products utilize standard Wi-Fi technology which cannot allocate fixed amounts of bandwidth for different data whereas the 8200 uses a unique polling technology based on WORP® to guarantee bandwidth for important applications such as voice or video and ensuring.

Enhanced Video Optimization: The 8200 utilizes Proxim’s proven WORP® algorithm which enables our video optimization technology to provide rich QoS functionality to dynamically allocate bandwidth for important applications such as video and voice.

Enormously Robust

IP67 Grade Enclosure: The IP-67 rated 8200 radios provides better ingress protection from extreme outdoor weather conditions compared to the regular IP-65 rated enclosure.

Surge Protected Connectors: Surge protected connectors limit the voltage spike to the radio by either blocking or by shorting to ground any unwanted voltages.

Weather Proofing Connector Kit: To ensure complete security, Proxim provides weather proofing kit to shield the connectors from any type of deterioration caused by weather and environment.

Wide Operating Temperature and Humidity Tolerance: The 8200 is designed to work in extreme cold and hot climatic conditions up to -40°C to 60°C and Max 100% relative humidity (non-condensing).
**Unparalleled Scalability**

**Superior Scalability:** A MP-8200 Base Station offers unmatched support with up to 250 subscribers without any signs of adverse affects.

**Wide Frequency:** The 8200 offers a wide frequency support for 4.900 – 5.925 GHz for various applications like ITS applications.

**Power Other Devices:** The Tsunami® 8200 features dual Gigabit Ethernet ports with PoE in/out to power other devices like surveillance cameras and wireless access points and can easily create tiered QoS service classes.

**Channel Size Selection:** The 8200 supports 5, 10, 20 and 40 MHz channel sizes which helps provide more deployment options in bandwidth restricted territories.

**Backward Compatibility:** Tsunami® 8200 series is fully compatible with existing Tsunami® 8100, 11, 820 series.

**Ultra-Secure**

**Military-Grade Security:** Tsunami® 8200 provides secure remote management via SSL, SSH and SNMPv3, it also leverages MAC, Ether type and IP address packet filtering for granular network security and implements AES encryption technology to secure client-to-client communications.

**Zero Effort**

**Easy Installation:** With DDRS, spectrum analyzer, and audio alignment tools dramatically reduce the guesswork associated with initial deployment and post-sales maintenance.

**User Friendly Interface:** ProximVision ES provides rapid network deployment, mobile configuration and greater ease of use in a software-based Network Management System - giving you a complete view of your wireless network.

**Easy Management:** The 8200 allows easier management with a plethora of management protocols ranging from Telnet, SNMPv3 to Web GUI.

**Outdoor Form Factor Only:** The 8200 is an exclusive outdoor unit with no Indoor unit, making installation quick and easy with complete scalability freedom.
Proxim’s Wireless Outdoor Router Protocol

WORP® enables the 8200 radios to overcome performance degradation that typical 802.11 wireless LAN technologies are susceptible to in outdoor long-range connectivity. WORP® with its smart polling algorithm ensures that degradation due to collisions (caused by problems like Hidden Node Problem) do not occur by only allowing one remote node to transmit at any time. Additionally it improves the performance by sending acknowledgements frame in the next data frame, hence reducing the number of frames by up to 50%. WORP also contains many other industry-standard communication protocol enhancements from IP (Internet Protocol) features that give WORP® its competitive edge while at the same time making it feature-rich and reliable.

Few of the many benefits

More Net Bandwidth: By solving the hidden node problem, WORP® increases the overall net bandwidth of the 8200 much higher than a standard Wi-Fi Access Point solution used in an outdoor environment.

More Concurrent Subscribers: The 8200 with WORP® can connect over 250 remote nodes without adverse effects on usable bandwidth, allowing more concurrent Subscriber Units to be active in a wireless multipoint environment.

Lower Overhead: Overhead of a WORP® link is minimized by the use of Super-packeting, Fragmentation and bursting.

Security: Every WORP® frame is encrypted; there is no data leakage in broadcast or management frames as there is nothing going over the air without being encrypted to the specified encryption method.

Roaming and Handoff: With roaming, WORP® supports mobility of the Subscriber Units, together with all the network nodes connected to the SU. The network topology change incurred by roaming event is handled automatically by additional Proxim’s proprietary protocol running on the network backbone making sure that all relevant information about the new topology is updated in time, keeping the traffic through roaming SU virtually uninterrupted.

Bandwidth Control: WORP® allows the service provider to control network bandwidth, protecting the network from excessive use of the bandwidth by any one station. Additionally it allows the service providers to differentiate their service offerings.

Quality of Service: WORP® takes care that the most important data arrives with priority by differentiating between priorities of traffic as defined in the profiles for QoS (Quality of Service) similar to the 802.16 WiMAX QoS standard definition.

Smart Scheduling: WORP® uses smart scheduling for the polling of remote nodes to avoid wasting bandwidth on remote nodes that have no traffic to be sent. The Base Station dynamically decides how frequent a remote node should be polled based on the current traffic to and from each remote node and the priority settings for that traffic. This scheduling is adapted dynamically to the actual traffic. The scheduling is further optimized by following the bandwidth limits as configured for each remote node.
Built to Last

Proxim’s commitment to engineering quality does not end with manufacturing high performance radios but rather begins with it. Proxim’s dedication to quality can be seen in the granular detail of not just its enclosure but in every component including the die cast material.

The 8200 enclosure leverages on the strengths and experience from the time tested, field proven Tsunami 8100 enclosures. The 8200 enclosures are approved after stringent screening involving Vehicular movement Transport Vibration (ISTA-2A), Drop, Shock, Salt Spray, Thermal, and Reliability tests. In addition the enclosure is IP 67 Grade that ensures complete protection from any kind of dust and has been tested under water at 1 meter depth.

Impeccably Engineered

- IP 67 Grade Enclosure –Ensure total protection from dust ingress and tested under 1 meter deep water
- Vehicular movement Transport Vibration (ISTA-2A) tested
- ADC12 Die Cast material provides superior quality casting surface
- Weather Proofing Connector Kit: To ensure complete security, Proxim provides weather proofing kit to shield even the connector from any type of deterioration caused by weather
- Granular protection with SS grade screws
- Surge Protection: Complete protection with two surge protectors one near the building and the other at the building ingress point

High Tolerance

- Operating Temperature Range -40°C to 60°C
- Storage Temperature Range: -55° to 80°C (-67° to 176° Fahrenheit)
- Humidity : Max 100% relative humidity (non-condensing)
ProximVision NMS

Simplify yours Wireless Network Management

ProximVision NMS enhances management capabilities with its client-server architecture and its integrated database.

Proxim Vision NMS breaks the frontier of the control room and expands management capabilities. The network operator is no longer required to be next to the management server, but can manage the entire network through the cloud via a simple web browser. Information is not limited to real time data: device status and events are saved into the database and can be recalled via the dashboard. Proxim Vision NMS also improves asset management via inventory report and scheduled firmware management. Proxim Vision NMS works with a customizable display layout, tree architecture, graphical maps and visual or audible alarms.

ProximVision NMS currently supports the following Proxim products and more

- Tsunami® MP-8200 high throughput point to multipoint series
- Tsunami® QB-8200 high throughput point to point series
- Tsunami® MP-8100 high throughput point to multipoint series
- Tsunami® QB-8100 high throughput point to point series

Complete Network Management

ProximVision NMS helps deploy and monitor Proxim Wireless networks more efficiently.

- Auto discovery of network devices makes identifying devices for configuration a snap
- User-friendly interface makes it possible to group, manage and configure all devices available on the wireless network
- Scheduled tasks ensure device configurations or firmware updates occur at less disruptive times
- Built in database records device status and provides review capabilities for deeper analysis of network behavior

Multiple Remote Access

ProximVision NMS gives network managers a flexibility to define access policy from the office or through the cloud.

- Local or Web based access provides management capabilities from around the globe
- Comprehensive profile creation allows control access and tracking activity of multiple operators
- Network segmentation enables simpler mobile monitoring and management of the network and devices

Geographical Network View and Performance Dashboard

ProximVision NMS provides a map overlay of your entire network with real-time, visual network status indicators

- Use the Static Map feature to place devices on a static map that are located in closed spaces such as buildings and offices
- Use the built in map location tool to create a geographic view of your network and placement of your wireless devices at configured GPS co-ordinates
- Devices and link status can quickly be determined thanks to color coded icons
- Network administrators can plot current or historic information such as link SNR, traffic load and other metrics to evaluate network health and manage bottlenecks

Fault Management

ProximVision NMS monitors your network and informs you of operational events or alarms

- You define the severity of each event and what level of alert is needed: visual, audible or email generation
- Alarm thresholds can be added for any parameter (via its SNMP object ID) with advanced threshold crossing rules
- Alert filtering tool helps quickly determine where the fault is. Once correction is applied, the alert is acknowledged
# Features

| CLIENT SERVER ARCHITECTURE | Server application running within the IT department  
Web and Java based client for remote access |
|----------------------------|-------------------------------------------------------------|
| ADMINISTRATION             | Customized User Access levels (unique profile per user)  
Advanced passwords management  
Connected user information and operation audit trail  
Data Base settings and management |
| CUSTOM LAYOUT              | Adapt PV NMS display to supervisor needs  
Managed two customized layout with easy toggle |
| DEVICE DISCOVERY           | Auto Discovery with periodic update  
Manual Discovery  
Link discovery templates  
Assign Newly discovered devices to groups  
Inventory report |
| TOPOLOGY MANAGEMENT        | Tree Architecture with Subnet Group organization  
Automatic device association (Tsunami MP SU to BSU or Tsunami QB EPA to EPB)  
Device Context Menu and Label selection |
| NETWORK MAPS               | Static maps based on imported drawing (area view, building plan ...)  
Dynamic Maps directly retrieved from Open Street Map (requires Internet connection)  
Dynamic Map functionality supports device placement at configured GPS Co-ordinates  
Use color coded icons to display devices and links over the map |
| WEB CONFIGURATION          | Direct Access to managed device WEB GUI |
| SCHEDULED TASK             | Data Base backup  
Periodic device configuration and logs backup  
Multiple device, SNMP object ID setting, Firmware upgrade or Automatic Reboot |
| FAULT MANAGEMENT           | Color coded Event and alarms display with acknowledgement  
Event selection in predefined list with severity selection  
Comprehensive Alarms threshold creation with multiple triggering criteria  
Visual, Audible and email alerts |
| NETWORK TROUBLESHOOTING    | ICMP ping, Traceroute and SNMP ping, even for non managed devices |
| DASHBOARD                  | View Current and History Chart Print, Save or Export to Excel file |
| SNMP VERSIONS              | SNMPv1, SNMPv2 and SNMPv3 |
| OPERATING SYSTEMS          | Windows 2003 server and Windows 2008 server |
| MINIMUM REQUIREMENTS       | Quad core 3 GHz CPU (Intel Xeon® E3-1220 or equivalent)  
4 to 8 GB RAM 500 to 750 GB single partition Hard Disk space |
Radio Specifications

**Tsunami® Multipoint 8200-BSU-G**

**PRODUCT MODELS**

- MP-8200-BSU-G: Tsunami® MP 8200 Base Station Unit, 300 Mbps, MIMO 3x3, GPS Sync ready, Type-N Connectors
- MP-8250-BS1-G: Tsunami® MP 8250 Base Station Unit, 300 Mbps, MIMO 2x2, GPS Sync ready, 23 dBi, 10° panel antenna
- MP-8250-BS9-G: Tsunami® MP 8250 Base Station Unit, 300 Mbps, MIMO 2x2, GPS Sync ready, 16 dBi, 90° sector antenna

**INTERFACES**

**WIRELESS**

- Two auto MDI-X RJ45 10/100/1000Mbps Ethernet (Port #1 with PoE in & Data, Port #2 with PoE out [802.3af pin out] & Data)
- WORP® (Wireless Outdoor Router Protocol)

**RADIO & TX SPECS**

**MIMO**

- 3x3 MIMO

**MODULATION**

- OFDM with BPSK, QPSK, QAM16, QAM64

**FREQUENCY**

- 4.900 – 5.925 GHz (Subject to Country Regulations)

**CHANNEL SIZE**

- 40 MHz, 20 MHz, 10 MHz, 5 MHz channel bandwidths

**DATA RATE**

- MCS 0 to 15 for High Throughput mode (65 – 300 Mbps) with Dynamic Data Rate Selection.
- 16-QAM & 64-QAM for legacy mode (6Mbps - 54Mbps)

**TX POWER**

- Up to 25.8dBm (Triple chain)

**TX POWER CONTROL**

- Dynamic Channel Selection (DCS) based on interference detection. Dynamic Frequency Selection (DFS) based on radar signature. Automatic Transmit Power Control (ATPC) with EIRP limit

**RX SENSITIVITY**

<table>
<thead>
<tr>
<th>Channel Size</th>
<th>40 MHz</th>
<th>20 MHz</th>
<th>10 MHz</th>
<th>5 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCS 0</td>
<td>-87 dBm</td>
<td>-93 dBm</td>
<td>-95 dBm</td>
<td>-98 dBm</td>
</tr>
<tr>
<td>MCS 7</td>
<td>-71 dBm</td>
<td>-74 dBm</td>
<td>-76 dBm</td>
<td>-79 dBm</td>
</tr>
<tr>
<td>MCS 8</td>
<td>-87 dBm</td>
<td>-91 dBm</td>
<td>-93 dBm</td>
<td>-96 dBm</td>
</tr>
<tr>
<td>MCS 15</td>
<td>-68 dBm</td>
<td>-72 dBm</td>
<td>-74 dBm</td>
<td>-77 dBm</td>
</tr>
</tbody>
</table>

**SYNCHRONIZATION**

- Synchronize internal clock to Pulse Per Second signal received from either GPS module connected to RJ45 serial port or Ethernet Synchronization module connected to RJ45 Ethernet port

**ANTENNA**

- Three N-type Connectors with built-in Surge Protection
- Integrated 2x2 MIMO 23dBi Dual Polarized Panel Antenna
- Integrated 2x2 MIMO 16dB Dual Polarized 90 degree Sector Antenna

**MANAGEMENT**

- RS-232 serial (RJ11 to DB-9 dongle provided)
- Telnet and SSH, Web GUI and SSL, TFTP, SNMPv3
- Internal MAC Address Control List, Radius based Authentication (with VLAN and QoS provisioning)

**GATEWAY FEATURES**

- DHCP Server & relay, NAT with std ALGs, PPPoE end point with Proxy DNS
- PPPv6 simultaneously

**SECURITY**

- Syslog, sFlow™ agent, SNTP and local time, Spectrum analyzer
- Bridging, Routing (RIP v2 and IP tunneling)
- Bridging, Routing (RIP v2 and IP tunneling)

**THROUGPUT**

- Up to 240 Mbps with WORP, up to 216 Mbps with WORP Sync

**QoS**

- Asymmetric Bandwidth Control
- UL and DL CIR Control “committed information rate” per service flow
- UL and DL MIR Control “maximum information rate” per service flow

**OTHER**

- Packet Classification Capabilities
- 802.1D/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, Real Time Polling Services

**VLAN**

- 802.1Q: Management VLAN, Transparent, Access, Trunk and Mixed mode. QinQ double tagging

**POWER CONSUMPTION**

- 12 Watt typical (22 Watt max)

**ENVIRONMENTAL SPECS**

**OPERATING TEMPERATURE**

- -40º to 60ºC (-40º to 140º Fahrenheit) Will continue operating if temperature temporarily varies between -50º and 70º C (-58º and 158º Fahrenheit)

**HUMIDITY, IP RATING, WIND LOADING**

- 100% relative humidity - IP67
- 200 km/h (125 mph)

**DIMENSIONS (PACKAGED)**

- MP-8200-BSU-G: 14.56 x 13.69 x 8.18 in.
- MP-8250-BS1-G: 14.17 x 14.17 x 3.70 in
- MP-8250-BS9-G: 16.31 lbs

**WEIGHT (PACKAGED)**

- MP-8250-BS1-G: 15 lbs (6.8 kg)
- MP-8250-BS9-G: 9.0 lbs (4.1 kg)

**WEIGHT (UNPACKAGED)**

- MP-8250-BS1-G: 7.7 lbs (3.5 kg)
- MP-8250-BS9-G: 9.0 lbs (4.1 kg)

**SAFETY STANDARDS**

- UL 60950, CAN/CSA-C22.2 No. 60950, IEC 60950, EN 60950 (part -1 and -22)

**PACKAGE CONTENTS**

- One Tsunami® MP-8200-BSU-G with three N-type surge protected connectors Or
- One Tsunami® MP-8250-BS1-G or BS9-G with integrated dual polarized antenna
- One Gigabit POE Surge Arrester
- One power injector and country specific power cord
- One Wall / Pole mounting kit
- One Connector weatherproofing kit (Includes all recommended weatherproofing material)
- One Quick Installation Guide
- One Antenna alignment (RJ11) dongle
- One Grounding kit
- One  Quick Installation Guide

**MTBF & WARRANTY**

> 250,000 hours & 1-year on parts and labor; ServPak Extended Support available.
Radio Specifications

**PRODUCT MODELS**

- **MP-8200-BSU**: Tsunami® MP 8200 Base Station Unit, 300 Mbps, MIMO 3x3, Type-N Connectors
- **MP-8250-BS1**: Tsunami® MP 8250 Base Station Unit, 300 Mbps, MIMO 2x2, 23 dB, 10° panel antenna
- **MP-8250-BS9**: Tsunami® MP 8250 Base Station Unit, 300 Mbps, MIMO 2x2, 16 dB, 50° sector antenna
- **MP-8200-SUA**: Tsunami® MP 8200 Subscriber Unit, 300 Mbps, MIMO 3x3, Type-N Connectors
- **MP-8250-SUR**: Tsunami® MP 8250 Subscriber Unit, 300 Mbps, MIMO 2x2, 23 dB integrated Antenna

**INTERFACES**

- **WIRELESS**
  - Two auto MDx RJ45 10/100/1000Mbps Ethernet (Port #1 with PoE in & Data, Port #2 with PoE out (802.3af pin out) & Data)
- **WIRELESS PROTOCOL**
  - WORP® (Wireless Outdoor Router Protocol)

**RADIO & TX SPECS**

- **PHYSICAL SPECS**
  - -50º and 70ºC (-58º and 158º Fahrenheit)
  - -40º to 60ºC (-40º to 140º Fahrenheit)

- **OPERATING TEMPERATURE**

- **ENVIRONMENTAL SPECS**
  - 12 Watt typical (22 Watt max)

- **PACKAGE CONTENTS**
  - One Tsunami® MP-8200-BSU with three N-type surge protected connectors
  - One Tsunami® MP-8200-SUA with three N-type surge protected connectors
  - One Tsunami® MP-8250-SUR with integrated 23 dB dual polarized antenna
  - One Connector weatherproofing kit (Includes all recommended weatherproofing material)
  - One Serial (RJ-11 to DB9) dongle
  - One power injector and country specific power cord
  - One Wall / Pole mounting kit
  - One Grounding kit
  - One Gigabit PoE Surge Arrestor
  - One Quick Installation Guide
  - One Gigabit PoE Surge Arrestor
  - One Grounding kit
  - One Wall / Pole mounting kit
  - One Connector weatherproofing kit (Includes all recommended weatherproofing material)

- **MTBF & WARRANTY**
  - >250,000 hours & 1-year on parts and labor, ServPak Extended Support available.
Radio Specifications

Tsunami QuickBridge® 8200-G Series

PRODUCT MODELS
- QB-8200-G-LNK: Tsunami® QB 8200 Link, 300 Mbps, MIMO 3x3, GPS sync ready, Type-N Connectors
- QB-8250-G-LNK: Tsunami® QB 8250 Link, 300 Mbps, MIMO 2x2, GPS Sync ready, 23 dB Integrated Antenna

INTERFACES
- WIRED ETHERNET: Two auto MDI-X RJ45 10/100/1000Mbps Ethernet (Port #1 with PoE in & Data - Port #2 with PoE out (802.3af pin out) & Data)
- WIRELESS PROTOCOL: WORP® (Wireless Outdoor Router Protocol)

RADIO & TX SPECS
- MIMO: 3x3 MIMO
- MODULATION: OFDM
- FREQUENCY: 4.900 – 5.925 GHz (Subject to Country Regulations)
- CHANNEL SIZE: 40 MHz, 20 MHz, 10 MHz*, 5 MHz* channel bandwidths
- DATA RATE: MCS 0 to 15 for High Throughput mode (6.5 – 300 Mbps) with Dynamic Data Rate Selection
- TX POWER: Up to 25.8 dBm (Double chain)
- TX POWER CONTROL: 0 – 25 dB, in 0.5 dB steps. Automatic TPC with configurable EIRP limit
- OTHER: Dynamic Channel Selection (DCS) based on interference detection, Dynamic Frequency Selection (DFS) based on radar signature, Automatic Transmit Power Control (ATPC) with EIRP limit support

RX SENSITIVITY (PER-10%)

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<tr>
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</table>
| MCS 0        | -87 dBm| -93 dBm| -95 dBm| -98 dBm|}

LATENCY
- < 3 msec

ANTENNA
- QB-8200-G-EPA: Three N-type Connectors with built-in Surge Protection
- QB-8250-G-EPR: Integrated 2x2 MIMO 23dBi Dual Polarized Antenna

MANAGEMENT
- LOCAL: RS-232 serial (RJ11 to DB-9 dongle provided)
- REMOTE: Telnet and SSH, Web GUI and SSL, TFTP, SNMP-v3
- SECURITY: Syslog, sFlow™ agent, SNTP and local time, Spectrum analyzer

ENCRYPTION AUTHENTICATION
- AES-CCM 128 bits
- Internal MAC Address Control List, Radius based Authentication

NETWORK
- MODES: Bridging (support LACP through external switches), Routing (RIP v2 and IP tunneling)
- GATEWAY FEATURES: DHCP Server & relay, NAT with Std ALGs
- MODULATION: OFDM
- IP STACK: IPv4 and IPv6 simultaneously
- THROUGHPUT: Up to 246 Mbps
- QoS: Asymmetric Bandwidth Control
- Packet Classification Capabilities: 802.1Q/802.1Q/SP, IP source/destination address, source/destination port, Ethernet source/destination address, IP protocol, and Ethertype
- Scheduling: Best Effort, Real Time Polling Services

VLAN
- 802.1Q: Management VLAN. Transparent, Access, Trunk and Mixed mode. QinQ double tagging

POWER CONSUMPTION
- 12 Watt typical (22 Watt max)

ENVIRONMENTAL SPECS
- OPERATING TEMPERATURE: -40º to 60ºC (-40º to 140º Fahrenheit) Will continue operating if temperature temporarily varies between -50º and 70ºC (-58º and 158º Fahrenheit)
- STORAGE TEMPERATURE: -55º to 80ºC (-67º to 176º Fahrenheit)
- HUMIDITY, IP RATING, WIND LOADING: 100% relative humidity, IP67, 200 km/h (125 mph)

PHYSICAL SPECS
- DIMENSIONS (PACKAGED): QB-8200-G-EPA: 14.56 x 13.69 x 8.18 in. (370 x 348 x 208 mm)
- DIMENSIONS (UNPACKAGED): QB-8250-G-EPR: 9.0 lbs (4.1 kg)
- WEIGHT (PACKAGED): QB-8200-G-EPA: 15 lbs (6.8 kg)
- WEIGHT (UNPACKAGED): QB-8250-G-EPR: 7.7 lbs (3.5 kg)

SAFETY STANDARDS
- UL 60950, CAN/CSA-C22.2 No. 60950, IEC 60950, EN 60950 (part 1 and 22)

PACKAGE CONTENTS
- One Tsunami® QB-8200-G-LNK based on two QB-8200-G-EPA with three N-type surge protected connectors or One Tsunami® QB-8250-G-LINK based on two QB-8250-G-EPR with an integrated 23dBi dual polarized panel antenna
- Two power injector and country specific power cord
- Two Wall / Pole mounting kit
- Two Connector weatherproofing kit (includes all recommended weatherproofing material)
- Two Serial (RJ11 to DB9) dongle
- Two Antenna alignment (RJ11) dongle
- Two Grounding kit
- Two Gigabit PoE Surge Arrestor
- Two Quick Installation Guide

MTBF & WARRANTY
- >250,000 hours & 1-year on parts and labor; ServPak Extended Support available

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Radio Specifications

**QBB-8200-LNK**
- Tsunami® QB 8200 Link, 300 Mbps, MIMO 3x3, Type-N Connectors (Two QB-8200-EPA)

**QBB-8250-LNK**
- Tsunami® QB 8250 Link, 300 Mbps, MIMO 2x2, 23 dB Integrated Antenna (Two QB-8250-EPR)

**INTERFACES**
- Wired Ethernet: Two auto MDI-X RJ45 10/100/1000Mbps Ethernet (Port #1 with PoE in & Data, Port #2 with PoE out [802.3af pin out] & Data)

**WIRELESS PROTOCOL**
- WDRP® (Wireless Outdoor Router Protocol)

**RADIO & TX SPECS**
- **MIMO**: 3x3 MIMO
- **MODULATION**: OFDM
- **FREQUENCY**: 4.900 – 5.525 GHz (Subject to Country Regulations)
- **CHANNEL SIZE**: 40 MHz, 20 MHz, 10 MHz*, 5 MHz* channel bandwidths * Not applicable for DFS Band
- **DATA RATE**: MCS 0 to 15 for High Throughput mode (6.5 – 300 Mbps) with Dynamic Data Rate Selection
- **TX POWER**: Up to 25.8 dBm (Triple chain)

**RX SENSITIVITY (Per=10%)**

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<tr>
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**LATENCY**
- < 3 msec

**ANTENNA**
- QB-8200-EPA: Three N-type Connectors with built-in Surge Protection
- QB-8250-EPR: Integrated 2x2 MIMO 23dBi Dual Polarized Antenna

**MANAGEMENT**
- **LOCAL**: RS-232 serial (RJ11 to DB-9 dongle provided)
- **REMOTE**: Telnet and SSH, Web GUI and SSL, TFTP, SNMPv3
- **SNMP**: SNMP v1-v2c-v3, RFC-1213, RFC-1215, RFC-2790, RFC-2571, RFC-3412, RFC-3414, Private MIB
- **OTHER**: Syslog, sFlow™ agent, SNTP and local time, Spectrum analyzer

**SECURITY**
- **ENCRYPTION**: AES-CCM 128 bits
- **AUTHENTICATION**: Internal MAC Address Control List, Radius based Authentication

**NETWORK**
- **MODES**: Bridging (support LACP through external switches), Routing (RIP v2 and IP tunneling)
- **GATEWAY FEATURES**: DHCP Server & relay, NAT with Std ALGs
- **IP STACK**: IPv4 and IPv6 simultaneously
- **THROUGHPUT**: Up to 246 Mbps

**QoS**
- Asymmetric Bandwidth Control
- Packet Classification Capabilities
- 802.1D/802.1Q/802.1p priority, IPTOS, VLAN ID, IP source/destination address, source/destination port, Ethernet source/destination address, IP

**VLAN**
- 802.1Q Management VLAN, Transparent, Access, Trunk and Mixed mode. QinQ double tagging

**POWER CONSUMPTION**
- 12 Watt typical

**ENVIRONMENTAL SPECS**
- **OPERATING TEMPERATURE**: -40° to 60°C (-40° to 140°F Fahrenheit) Will continue operating if temperature temporarily varies between -50° and 70°C (-58° and 158°F Fahrenheit)
- **STORAGE TEMPERATURE**: -55° to 80°C (-67° to 176°F Fahrenheit)
- **HUMIDITY, IP RATING, WIND LOADING**: 100% relative humidity - IP67, 200 km/h (125 mph)

**PHYSICAL SPECS**
- **DIMENSIONS (PACKAGED)**: 14.56 x 13.69 x 8.18 in. (370 x 348 x 208 mm)
- **DIMENSIONS (UNPACKAGED)**: 15.94 x 15.94 x 9.21 in. (405 x 405 x 234 mm)
- **WEIGHT (PACKAGED)**: QB-8200-EPA: 15 lbs (6.8 kg), QB-8250-EPR: 16.31 lbs (74 kg)
- **WEIGHT (UNPACKAGED)**: QB-8200-EPA: 7.7 lbs (3.5 kg), QB-8250-EPR: 9.0 lbs (41 kg)

**SAFETY STANDARDS**
- UL 60950, CAN/CSA-C22.2 No. 60950, IEC 60950 (part -1 and -22)

**PACKAGE CONTENTS**
- One Tsunami® QB-8200-LNK based on two
- Two power injector and country specific power cord
- Two Wall / Pole mounting kit
- Two Serial (RJ-11 to DB9) dongle

**MTBF & WARRANTY**
- >250,000 hours & 1 year on parts and labor; ServPak Extended Support available
**Serv Pak**

**Extended Services, Support and Warranties for Enhanced Investment Protection**

Proxim Wireless understands that service and support requirements vary from customer to customer. It is our mission to offer service and support options that go above and beyond normal warranties to allow you the flexibility to provide the quality of service that your networks demand.

By selecting Proxim Wireless equipment, you’ve already committed to protect your network investment with an end-to-end wireless portfolio that gives you the flexibility to scale, the lowest total cost of ownership, and the highest reliability for quadruple play services. But why stop there? To provide even greater investment protection, Proxim Wireless offers a cost effective support program called ServPak. ServPak is a program of enhanced service support options that can be purchased as a bundle or individually, tailored to meet your specific needs. Whether your requirement is around the clock technical support or advance replacement service, we are confident that the level of support provided in every service in our portfolio will exceed your expectations.

**SERVPAK OPTIONS INCLUDE**

**Advanced Replacement of Hardware:**
Can you afford to be down in the event of a hardware failure? Our guaranteed turnaround time for return to factory repair is 30 days or less. Those customers who purchase this service are entitled to advance replacement of refurbished or new hardware guaranteed to be shipped out by the Next Business Day. Hardware is shipped Monday – Friday, 8:00AM – 2:00PM (PST).

**Extended Warranty:**
Extend the life of your networking investment by adding 1, 2, or 3 years to your products standard warranty. This service coverage provides unlimited repair of your Proxim hardware for the life of the service contract. The cost of an extended warranty is far less than the cost of a repair providing a sensible return on your investment.

**7x24x 365 Technical Supports:**
This service provides unlimited, direct access to Proxim’s world-class Tier 3 technical support engineers 24 hours a day, 7 days a week, 365 days a year including Holidays. Customers who purchase this service can rest assured that their call for technical assistance will be answered and a case opened immediately to document the problem, troubleshoot, identify the solution and resolve the incident in a timely manner or refer to an escalation manager for closure.

**8x5 Technical Support:**
This service provides unlimited, direct access to Proxim’s world-class technical support 8 hours a day, 5 days a week from 8:00AM - 5:00PM (PDT). Typically, technical support is provided for free for the entire time the product is covered by a Proxim warranty. Beyond this period, Technical Support is available at cost on a per incident basis. With the 8x5 Technical Support service, technical support will be available for the duration of the ServPak contract at no additional costs.

**Standalone Services**

**Extended Warranty ServPak**
Extends warranty for the duration of the contract

**Pay As You Go Technical Support Services**
Pay per incident support
Detailed pricing can be found online at http://proxim.com/support/contact.html

**Professional On-Site Services**
Pay per scope of work agreement
Quotations will be given on a case to case basis
All requests are subject to approval from Proxim Wireless
For more information, please find our brochure at
Proxim Wireless Corporation (OTC Markets: PRXM) provides Wi-Fi®, Point-to-Point and Point-to-Multipoint 4G wireless network technologies for wireless internet, video surveillance and backhaul applications. Our ORINOCO® and Tsunami® product lines are sold to service providers, governments and enterprises with over 2 million devices shipped to over 250,000 customers in over 65 countries worldwide. Proxim is ISO 9001-2008 certified. For more information, visit www.proxim.com. For investor relations information, e-mail ir@proxim.com or call +1 413-584-1425.