# WabMAX

## Wireless Adaptive Bridge for BWA networks allowing seamless switching between multiple radio networks and technologies.

## PRELIMINARY

WabMAX is a specialized device allowing wireless access customers the ability to switch and adopt the best possible wireless network on the fly, based on radio coverage, frequency, technology and performance availability and stability.

In projects where customers demand high network availability, in fixed or mobile wireless access environment the WabMAX provides optimal results by adopting multiple wireless networks when available while maximizing the customer retention and ROI.
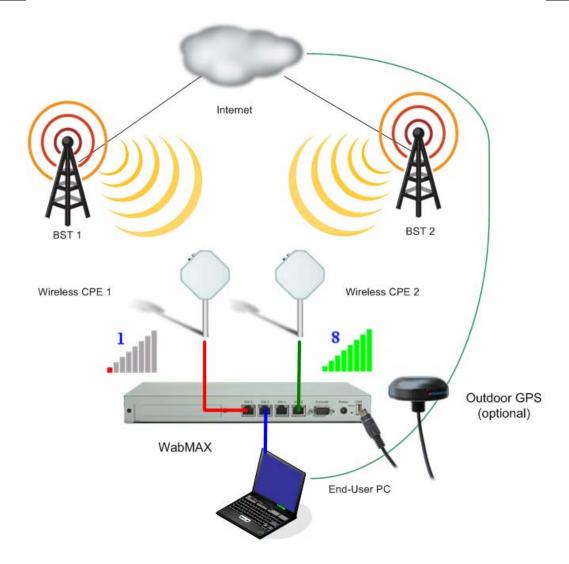
WabMAX is composed of sophisticated software specially tailored for the WiMAX and Broadband Wireless access technologies that runs on small size hardware platform. As the core functionality the solution is functioning as transparent, Ethernet layer 2, wireless bridge with multiple interfaces. Each interface can be connected to a wireless CPE which in turn has wireless connectivity with a base station. Each of the CPEs can use different frequency and/or wireless technology. WabMAX continuously monitors the status of each radio device (i.e. operational or not) and it's wireless performance and coverage availability. In case the combined results are below a predefined KPI threshold for a CPE radio, the device switches the traffic to the next best available network while actively updating the topology change on the destination network. The network handover happens transparently to the end-user and usually is fully complete after 1 second from a handover decision.

Optional algorithm enhancements are available for mobile applications where the handover decisions are GPS assisted for increased quality and handover speed.

**Sales Contact:**        sales@alphimax.com                      **Web Site:**     www.alphimax.com

| Enables | Key Values |
|---|---|
| • Adaptive Multi-wireless network connectivity and handover.<br><br>• Provides "wireless back-up" line by using alternative network for fixed deployments.<br><br>• Extended wireless coverage by using multiple wireless CPEs with higher gain antennas.<br><br>• Spatial diversity for high availability.<br><br>• Frequency diversity.<br><br>• Complete wireless link redundancy.<br><br>• Mobile applications and technology convergence | • Dedicated to BWA and WiMAX networks.<br><br>• All in one integrated solution.<br><br>• Seamless handovers.<br><br>• Seamless network configuration implementation.<br><br>• Transparent to any layer 3 protocols.<br><br>• Handover performed on Ethernet Layer 2 level. |

<table>
<tr><th colspan="2">WabMAX Product Specification</th></tr>
<tr><td colspan="2"><strong>Mechanical and Electrical</strong></td></tr>
<tr><td>Dimensions</td><td>6.7" x 11.5" x 1.3"</td></tr>
<tr><td>Weight</td><td>0.45 kg , 1 lbs</td></tr>
<tr><td>Power Consumption</td><td>&lt; 20 Watts</td></tr>
<tr><td>AC Power Input</td><td>100-230 VAC (AC-DC PS 12VDC to actual device)</td></tr>
<tr><td colspan="2"><strong>Connectors</strong></td></tr>
<tr><td>Ethernet (Radio Interfaces)</td><td>4 x RJ-45 10/100 Mbps Ethernet ports with embedded LEDs<br><br>Optional: 8x RJ-45 Ethernet ports</td></tr>
<tr><td>DC Input (Device Power)</td><td>12VDC DC jack</td></tr>
<tr><td>COM Port</td><td>RS-232 Serial Port for initial configuration</td></tr>
<tr><td>USB Port</td><td>1 x USB port</td></tr>
<tr><td colspan="2"><strong>Environmental</strong></td></tr>
<tr><td>Operating temperature</td><td>32°F to 140°F (0°C to 60°C)</td></tr>
<tr><td>Operating humidity</td><td>5%-95% non condensing</td></tr>
<tr><td>RoHS Compliant</td><td>RoHS</td></tr>
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<tr><th colspan="2">Radio Technologies</th></tr>
<tr><td><strong>Radio Vendor</strong></td><td><strong>Supported Radio Configuration Options</strong></td></tr>
<tr><td rowspan="7">Alvarion<br><br>(see vendor web page for radio specification per option)</td><td>BreezeMAX SU-SI/PRO-S 2300 – 2.305 to 2.360 GHz</td></tr>
<tr><td>BreezeMAX SU-SI/PRO-S 2300US – 2.305-2.315 &amp; 2.350-2.360 GHz</td></tr>
<tr><td>BreezeMAX SU-SI/PRO-S 2500 – 2.495 to 2.690 GHz</td></tr>
<tr><td>BreezeMAX SU-SI/PRO-S 3500 – 3.399 to 3.600 GHz</td></tr>
<tr><td>BreezeMAX SU-SI/PRO-S 3650 – 3.650 to 3.700 GHz</td></tr>
<tr><td>SU BreezeACCESS VL , BreezeACCESS 4900 &amp; BreezeNET B</td></tr>
<tr><td>BreezeACCESS SU-M-900</td></tr>
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| GPS Options | |
|---|---|
| **GPS Type** | **Specifications** |
| Removable – USB | SiRF Star III High Performance GPS chip set<br><br>High sensitivity (Tracking Sensitivity: -159 dBm)<br><br>Extremely fast TTFF (Time To First Fix) at low signal level<br><br>Support NMEA 0183 data protocol<br><br>Built-in SuperCap to reserve system data for rapid satellite acquisition<br><br>Built-in patch antenna<br><br>Waterproof<br><br>Super-cohesive magnetic mount for vehicles |
| Fixed Mount – USB | SiRF Star III High Performance GPS chip set<br><br>High sensitivity (Tracking Sensitivity: -159 dBm)<br><br>Extremely fast TTFF (Time To First Fix) at low signal level<br><br>Support NMEA 0183 data protocol<br><br>Built-in SuperCap to reserve system data for rapid satellite acquisition<br><br>Built-in patch antenna<br><br>Waterproof<br><br>Cable Distance 15 ft (4.5 meters) |

# WabMAX Product Configurations

| Product Name | Description | Max CPEs | Max Number of Technologies |
|---|---|---|---|
| WabMAX-1000 | Wireless Adaptive Bridge switching between 2 CPEs of the same radio technology<br><br>3 x Ethernet Ports total | 2 | 1 |
| WabMAX-2000 | Wireless Adaptive Bridge switching between 2 CPEs of different radio technology<br><br>4 x Ethernet Ports total | 3 | 2 |
| WabMAX-2001 | Wireless Adaptive Bridge switching between 2 CPEs of different radio technology<br><br>8 x Ethernet Ports total | 3 | 2 |
| WabMAX-2100 | Wireless Adaptive Bridge switching between 2 CPEs of different radio technology<br><br>Including GPS unit<br><br>4 x Ethernet Ports total | 3 | 2 |