Applications:

ISPAIR Multi-band Base Station 500 Series

Four radios and multiple operation modes and frequencies in one!

ISPAIR Multi-band Base Station 500 series is an Outdoor Radio Access Point with four High Power wireless ports at 2.3-2.5/4.9/5GHz, 802.11a/b/g standard-compliant, future WiMAX and 802.11n. ISPAIR Multi-band Base Station 500 series is the ideal solution for Wireless ISP, large Mesh networks, long range HotSpot, Public Safety Networks and Multipoint applications needing high-performance outdoor Wi-Fi and WiMAX equipments in a fast-growing market and at low cost.

ISPAIR Multi-band Base Station 500 series can have four 90 deg sector panel antenna or three 120 deg sector panel antenna and one backhaul link, the ISPAIR Multi-band Base Station 500 series delivers Internet and VoIP service to your laptop, Wi-Fi phone or network clients - LAN at large distances. you can use this Base Station to provide NLoS - Non Line of Sight and LoS - Line of Sight applications, high data rates and superior throughput for data intensive that allow multiple sites to share a single, high-speed connection to the Internet or VoIP telephony networks. The most feature-rich firmware and OS software allow you to apply most advanced RF and networks functions as advanced IP Routing, QoS - quality of service, Firewall, DHCP Server, NAT, Bandwidth Shaping, HotSpot and other technologies to create a smart and easy controllable network.

ISPAIR Multi-band Base Station 500 series can work as an access point, WDS, Client and repeater, or as a combination of these. Each radio has separately adjustable power output, with its own frequency and channel, SSID and encryption settings, that allow you to cover long distances in Multipoint applications up to 20 miles or 32 Km. All of these characteristics transform this Base Station into the most powerful, complete and advanced of the world.

With prominent 216Mbps of capacity (54 Mbps each radio) data transfer rate in regular mode or 432Mbps (108mb each radio) data transfer rate on turbo mode and up to 1 Watt output power, you can forget about the word "interference". The ISPAIR Multi-band Base Station 500 series is the next generation of wireless equipments. Step together in the future with us!

Features:

- Intel XScale technology CPU power for high-speed connection.
- Four Radios and Multiple Frequency in one (Choose the Frequency You Need!).
- Work as Access Point, WDS, Client and Repeater in Bridge or Router mode.
- Ultra High power RF Ports up to 1 Watt, for long distance.
- Long Distance parameters and Output power regulation (selected by software).
- Perfect design and characteristics for Industrial outdoor use (waterproof).
- Complete compatibility with any IEEE network and future WiMax
- Advanced Network functions (IP Routing, Hotspot, Firewall, DHCP, NAT, etc)
- Bandwidth Management and QoS
- Free Netkrom NMS - Network Management System
- Carrier Class Radio for extreme environment -60 to 230C

Applications:
Specifications:

**HARDWARE**

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® IXP425 XScale® 533 MHz</td>
</tr>
<tr>
<td>Memory Flash</td>
<td>16 MB</td>
</tr>
<tr>
<td>Console Port</td>
<td>One Serial DB9 standard</td>
</tr>
<tr>
<td>RF Port</td>
<td>Four RF Mini-PCI modules</td>
</tr>
<tr>
<td>Power Connections</td>
<td>802.3af Power over Ethernet 9-48v DC</td>
</tr>
<tr>
<td>Weight</td>
<td>4.5 Lb. or 2 Kg. (Radio, Bracket and accessories)</td>
</tr>
<tr>
<td>Memory</td>
<td>64 MB</td>
</tr>
<tr>
<td>Ethernet Port</td>
<td>Two Ethernet 10/100 Mbps</td>
</tr>
<tr>
<td>Console Port</td>
<td>One Serial DB9 standard</td>
</tr>
<tr>
<td>RF Connector</td>
<td>Four N-Female type</td>
</tr>
<tr>
<td>Enclosure</td>
<td>Industrial Die-Cast Thermal Aluminum, NEMA-6 / IP-67</td>
</tr>
<tr>
<td>Dimensions</td>
<td>8.3 x 6 x 2 in (21 x15 x 5cm.)</td>
</tr>
<tr>
<td>Mount</td>
<td>Pole or tower mounting brackets</td>
</tr>
</tbody>
</table>

**SOFTWARE**

**RF Operational Modes**
- Access Point (bridge or router function)
- WDS (bridge function)
- Repeater (bridge function)
- AP Client (bridge or router function)
- Station (bridge or router function)

**Advanced Wireless Features**
- Tx Power and Tx Rate
- Antenna Selection
- ACK Timeout
- WMW - Wireless QoS
- MAC Address Spoofing
- Hide SSID and Stealth Mode
- Best Channel Selection and Country Code Selection
- DFS/TPC (Dynamic Frequency Selection / Transmit Power Control)
- Compression, Bursting, Fast Frames
- 802.11h Full Support
- Antenna Alignment (Site Survey / Link Quality / Signal Level)

**Network Advanced Features**
- Transparent Bridging
- Layer 2 (Mac Address) Forwarding
- Layer 3 (IP Address) Forwarding
- Static Routing
- RIP v2
- DHCP Server and Client
- PPPoE Client/PPTP Client
- Vlan (802.1Q) Support
- Advance Statistics
- Graphical User Interface
- Monitor Utilis (Ping and Trace Route)

**Firewall - NAT**
- Input/Output Interface
- Source IP/Subnet
- Port(s)
- Source Mac
- Destination IP/Subnet
- Protocol (ICMP, TCP, etc)
- Connection State (New, Established, etc)

**Security Features**
- Access Control List
- WEP 64/128
- WPA1/WPA2 with TKIP & AES ciphers

**QoS - Bandwidth Management**
- Committed Information Rate (CIR)
- Peak Information Rate (PIR)
- Committed Burst Size (CBS)
- Excess Burst Size (EBS)
- Based in:
  - Input/Output Interface
  - Source IP/Subnet
  - Source Port(s)
  - Source Mac
  - Destination IP/Subnet
  - Destination Port(s)
  - Destination Mac
  - Protocol (FTP, ICMP, TCP, etc)
  - Application (Peer to Peer, EDonkey, Kazza, IRC, etc)

**Hot Spot Features**
- WAN, LAN, DHCP, Firewall - NAT
- QoS - Bandwidth Management
- Wireless Radius Client
- UAM Authentication, MAC Address Authentication
- Walled Garden
- Advertisement Sites
- Log in Page Customization
- Users Info, Radius Statistics

**Administration Tools**
- SNMP Agent
- NTP Agent
- HTTP Server
- SSH
## RF Modules

<table>
<thead>
<tr>
<th>Model</th>
<th>ISP-BS500GH</th>
<th>ISP-BS500AGUHP</th>
<th>ISP-BS500AH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequencies</strong></td>
<td>2.4GHz Band: 2400-2497MHz (<em>) 2300 - 2500 MHz (</em>) 4.9GHz Band: 4940-4990MHz (public Safety Band) 5GHz Band: 5150-5850MHz (*)</td>
<td>2.4GHz Band: DSSS (DBPSK, DQPSK, CCK) OFDM (BPSK,QPSK, 16-QAM, 64-QAM) 4.9GHz Band: OFDM (BPSK,QPSK, 16-QAM, 64-QAM) 5GHz Band: OFDM (BPSK,QPSK, 16-QAM, 64-QAM)</td>
<td>4.9GHz Band: 4940-4990MHz (public Safety Band) 5GHz Band: 5150-5850MHz (<em>) (</em>) programmable for different country regulations)</td>
</tr>
<tr>
<td><strong>Standard Compliance</strong></td>
<td>IEEE 802.11b/g</td>
<td>IEEE 802.11a/b/g and Public Safety Band</td>
<td>IEEE 802.11a and Public Safety Band</td>
</tr>
<tr>
<td><strong>Access Method</strong></td>
<td>TDD (CSMA/CA)</td>
<td>2.4GHz Band: DSSS (DBPSK, DQPSK, CCK) OFDM (BPSK,QPSK, 16-QAM, 64-QAM) 4.9GHz Band: OFDM (BPSK,QPSK, 16-QAM, 64-QAM) 5GHz Band: OFDM (BPSK,QPSK, 16-QAM, 64-QAM)</td>
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</tr>
<tr>
<td><strong>Channel Bandwidth</strong></td>
<td>5, 10, 20 or 40 MHz (Selected by Software)</td>
<td>2.4GHz Band: 30dBm@6-24Mbps 26dBm@54Mbps 4.9/5GHz Band: 26dBm@6-24Mbps 22dBm@54Mbps</td>
<td>26dBm@6-24Mbps 24dBm@54Mbps</td>
</tr>
<tr>
<td><strong>Modulation technique</strong></td>
<td>OFDM (BPSK,QPSK, 16-QAM, 64-QAM)</td>
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<td>OFDM (BPSK,QPSK, 16-QAM, 64-QAM)</td>
</tr>
<tr>
<td><strong>Output Power</strong></td>
<td>-97dBm@1Mbps -94dBm@6Mbps -74dBm@54Mbps</td>
<td>2.4GHz Band: -95dBm@1Mbps -92dBm@6Mbps -74dBm@54Mbps 4.9/5GHz Band: -94dBm@6Mbps -86dBm@24Mbps -74dBm@54Mbps</td>
<td>26dBm@6-24Mbps 24dBm@54Mbps</td>
</tr>
<tr>
<td><strong>Receiving Sensitivity</strong></td>
<td>-97dBm@1Mbps -94dBm@6Mbps -74dBm@54Mbps</td>
<td>2.4GHz Band: -95dBm@1Mbps -92dBm@6Mbps -74dBm@54Mbps 4.9/5GHz Band: -94dBm@6Mbps -86dBm@24Mbps -74dBm@54Mbps</td>
<td>-94dBm@6Mbps -86dBm@24Mbps -74dBm@54Mbps</td>
</tr>
<tr>
<td><strong>EMC Certificate</strong></td>
<td>FCC Part 15/UL ETSI 300/328/CE</td>
<td></td>
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</tr>
</tbody>
</table>

**Ordering Information:**

- **ISP-BS500GH**
  ISP AIR Tri-Band 2.3-2.5 802.11b/g Sectoral Base Station Ultra High Power AP with 4-RF Port Radio 1Watt and PoE

- **ISP-BS500AGUHP**
  ISP AIR Tri-Band 2.3-2.5/4.9/5GHz 802.11a/b/g Sectoral Base Station Ultra High Power AP with 4-RF Port Radio 1 Watt@2.4GHz / 400mw@5GHz and PoE

- **ISP-BS500AH**
  ISP AIR 4.9 to 6.1GHz 802.11a Sectoral Base Station Ultra High Power AP with 4-RF Port Radio 600mW and PoE

**WE PROTECT YOUR INVESTMENT: 802.11n and WiMAX upgradable**

As a company focused exclusively on Wireless data transmission, NETKROM is committed to long-term product planning, backwards compatibility and the integration of new technologies that will allow it to support traditional enterprise markets. The NETKROM Base Station is upgradeable to WiMAX and recently approved 300/600Mbps 802.11n standard.