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airHaul
Nexus

intelligent wireless platform

The airHaul™ Nexus is the industry first Multi-band, Near-Line-of-Sight wireless backhaul solution for Wireless Internet Service Providers (WISPs), Operators and Enterprise Networks. It operates in the license free frequency bands as a LongRange™ Point-to-Point system and leverages the excellent multi-path resistance capabilities of the COFDM technology.

Built on the award winning Nexus platform, the Point-to-Point airHaul™ Nexus (sB3010) provides as much as 15 Mbps of data throughput with a range of up to 25 miles (40 km). The airHaul™ Nexus is the best-in-class backhaul with its intelligent networking features and carrier class attributes.

Unprecedented RF performance

Using the latest COFDM technology, the airHaul™ Nexus multi-band radio operates in the license free 2.4 GHz or 5.2 GHz to 5.8 GHz bands (software selectable) to deliver 23 non-overlapping channels. The Dual N-connectors on the unit allow Hi band (5.x GHz) and Lo Band (2.4 GHz) antennas to be installed together. In the event of RF congestion, the Nexus' software tunable radios can remotely change the frequency bands. In addition, the radio employs advanced interference mitigation techniques to provide high availability to the clients. The radio delivers high transmit power and ultra high receive sensitivity for long operating range. The net result of this superior RF engineering is reliable and high performance wireless backhaul links for your distant subscribers.

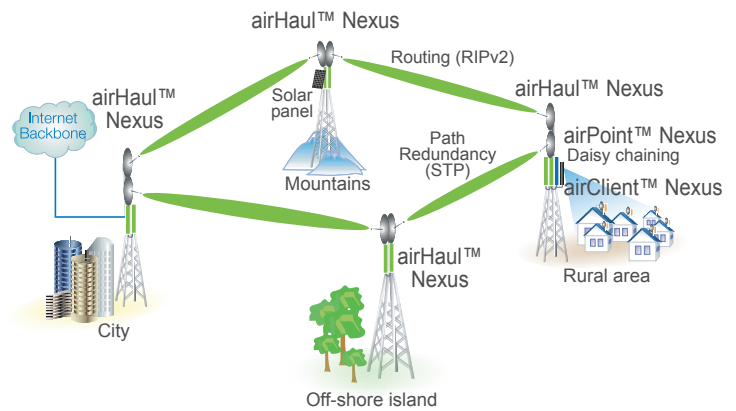## Intelligent Networking for the Wireless Backhaul

Supporting the superior RF performance are the network processing capabilities built with a host of intelligent Layer 3 networking features. These built-in wide area edge router capabilities allow the operators to deploy large, scalable and hierarchical networks. The Spanning Tree Protocol facilitates installation of redundancy in the network. The WatchGuard feature of the airHaul continuously monitors the device and performs an automatic recovery for realizing high availability system. The airHaul has a unified Web and SNMP (MIB II compliant) based remote management interface. This means quick integration of the airHaul™ Nexus with the industry leading EMS solutions.

Carrier Class Attributes

The purpose built airHaul™ Nexus with electrical overstress protection can withstand harsh outdoor operating environments ranging from -45º C to +60º C (-50º F to 140º F) and very humid or dry conditions. The rust proof plenum rated metal enclosure with enclosed N-connectors give added protection from environmental conditions.

Quick and Easy Deployment

Technician's time for field installation is expensive. With this in mind, the airHaul™ Nexus kit is designed for rapid out-of-the-box installation. With the easy to use backhaul, simple to use software and audio tone antenna alignment aid, the network can be setup rapidly and cost-effectively.

Feature Highlights

- High performance Near-Line-of-Sight Point-to-Point backhaul system

- COFDM technology to ensure high data rates, high spectral efficiency, and immunity to interference and multi-path delays

- Multi-band radio with 23 non-overlapping channels uses advanced RF interference mitigation

- High transmit radio power and ultra high receive sensitivity for LongRange™ coverage

- Adaptive modulation with automatic multi-rate selection to maximize throughput according to radio link performance

- Wireless backhaul with integrated Layer 3 wide area edge router functions and Spanning Tree Protocol

- Secure data communication using 128 bit WEP and Wi-Fi Protected Access (WPA# - IEEE802.11i)

- Remote Web and SNMP based Management

- Built in tools to analyze and monitor link condition

- Purpose built for harsh outdoor environments

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RADIO PARAMETERS

Radio Frequency Bands	Unlicensed ISM and UNII bands 2.400 - 2.485 GHz, 5.250 - 5.350, 5.470 - 5.725, 5.725 - 5.875 GHz
Wireless Modulations /Data Rates	COFDM with BPSK, QPSK, 16 QAM, 64QAM Modulation Data Rates - 54, 48, 36, 24, 18, 12 and 6 Mbps
Transmit Power Output (in dBm)	+24 to -4 @ 6 Mbps, +21 to -4 @ 54 Mbps (2.4 GHz) +21 to -4 @ 6 Mbps, +18 to -4 @ 54 Mbps (5.x GHz)
Receive sensitivity (in dBm)	-91 @ 6 Mbps, -73 @ 54 Mbps (2.4 GHz) -90 @ 6 Mbps, -69 @ 54 Mbps (5.x GHz)
RF Interference Mitigation	TPC/DFS (IEEE 802.11d/h), Tight Spectral Mask, Multi-band, Squelch control
RF Channels	23 non-overlapping channels*

OPERATIONAL PARAMETERS

Standards Compliance	IEEE 802.11g, 802.11a and sB Enhanced mode
Recommended Max Link Distance	FCC 5.8 GHz: 25 miles (40 km) using 29 dBi Dish Antenna FCC 2.4 GHz: 25 miles (40 km) using 24 dBi Dish Antenna
Typical Useful Throughput	Up to 15 Mbps
Data Throughput Turbo Booster	Packet Concatenation, Packet Bursting and Compression for high spectrum efficiency
Bandwidth Management	Bandwidth Management for upstream/downstream rates
Calendar Function	Time-of-day based service profiles

NETWORK MANAGEMENT AND SECURITY

Data Security	Wi-Fi Protected Access (WPA[#] - IEEE 802.11i), 64/128 bit WEPP
Access Protection	MAC Authentication
VLAN	VLAN Passthrough
Fully Transparent Bridge	Spanning Tree Protocol (IEEE 802.1d)
Layer 3 Routing	RIPv2
Network Support	DHCP Server, Relay and Client, NTP Client
Utilities	Link Watchguard, Remote Loopback Test, Link budget calculator, Syslog and SNMP traps
Management Interface	Web and SNMP based management, SNMP v2c (MIB II compliant)

HARDWARE PARAMETERS

CPU/Memory	High performance 400 MHz Intel IXP network processor, 32MB SDRAM, 16MB FLASH memory
Motherboard	ESD and electrical overstress protection, Extended temperature range electronics
High Availability System	Self monitoring and auto recovery, Hardened Linux OS

PHYSICAL, ENVIRONMENTAL AND COMPLIANCE PARAMETERS

Network Connection	Dual 10/100 BaseT, Auto MDI/MDX, Surge Protected Fast Ethernet ports, Power output on 2nd Ethernet port for Daisy chaining
Antenna Connector	Dual N (Female) Bulkhead Connectors (50 Ohm)
Antenna Alignment Aid	Audio Tone Antenna Alignment aid
Mounting	Complete Radio and mounting bracket for installation on wall or pole
Power Consumption	48V, 200mA (9.6W) with PoE Injector - Lightning protection circuit, Remote reset
Operating Environment	-45ºC to +60ºC (-50ºF to +140ºF), 5% to 95% non-condensing humidity, Outdoor rated
Enclosure	Plenum-rated metal enclosure, Wall/Pole mounting brackets
Dimensions and Weight	198 x 62 x 250 mm (7.79" x 2.44" x 9.84"), Approx. 3.3 kg (7.26 lbs)
Certification	SA: FCC 47 CFR Part 15C, Section 15.247, 15.407 - FCC ID: PWG NEXUS1 Europe: ETSI 301 893, CE Marked

All channels may not be available in your regulatory domain
[#]*Upcoming software upgrade*

For detailed product information, visit **www.smartbridges.com/products/ah.asp**
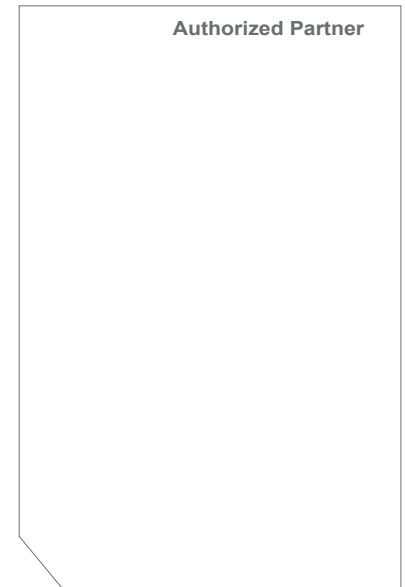
contact

E-mail: sales@smartbridges.com

Singapore
smartBridges Pte Ltd
745 Toa Payoh Lorong 5
#04-01
Singapore 319455

USA
smartBridges LLC
1701 Quincy Ave #12A
Naperville, IL 60540
USA

India
MIG - C/41
A S Rao Nagar
Hyderabad-500062
India

Caribbean and Latin America (CALA)
Ave Rogrigues Alves
737 Suite 32
Sao Paulo, 04014-012
Brazil

Global Customer Support Center
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