



WaveKROM Backhaul

1000 Series

WaveKROM Backhaul 1000 Series is a carrier-class product providing high-capacity, long-range connectivity at 5Ghz band.

The **WaveKROM Backhaul 1000 Series** offers carrier-class link connectivity, delivering up to 200 Mbps net aggregated throughput in licensed and unlicensed bands for PTP solutions, ideal for dedicated access and backhaul applications (including Video and VOIP). The **WaveKROM Backhaul 1000 Series** features advanced software mechanisms that provide optimal point-to-point connectivity for high-throughput at long distance links.

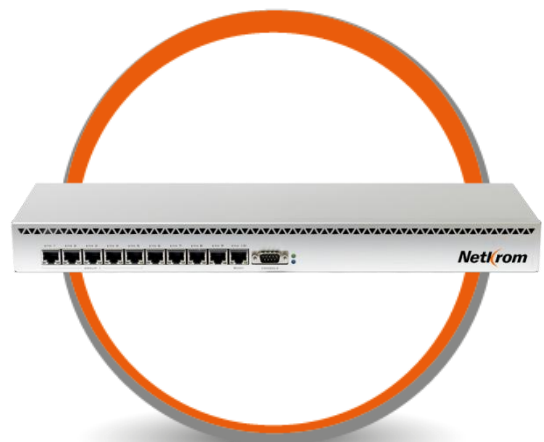
WaveKROM Backhaul 1000 Series utilizes proprietary PTP mechanisms and techniques such as Dynamic Time Division Duplexing - TDD and Frequency Division Duplexing - FDD to dynamically allocate bandwidth in the direction needed, thus increasing link efficiency and greatly decreasing the impact that distance has on throughput of the link. The **WaveKROM Backhaul 1000 Series** also features selective repeat ARQ technology, an enhanced error-correction software mechanism that optimizes data traffic to provide very high throughput over high-bandwidth long-range links even in the presence of interference.

WaveKROM Backhaul 1000 Series transports native TDM and Ethernet over a single wireless link (Up to 16 E1/T1 & Ethernet); it is new-generation TDM/Hybrid/Packet integrated microwave transmission system. It provides a solution where TDM, Hybrid, and Packet microwaves can be integrated. **WaveKROM Backhaul 1000 Series** supports the processing and access of native TDM services, native Ethernet services.

WaveKROM Backhaul 1000 Series links have class-leading sensitivity and power output, which enable the links to go up to 155 miles (250 km). **WaveKROM Backhaul 1000 Series** combines Multiple Antenna – MIMO Technology, OFDM modulation for robust communications and avoid multipath fading obtain more bandwidth and spectrum efficiency.

Features:

- Dynamic TDD and FDD for Bandwidth Optimization
- ARQ (Selective Repeat) for very high throughput
- Net aggregated throughput up to 200Mbps
- High Output Power 28 dBm
- Advanced Security Technologies: AES 128 & 256
- Adaptive Modulation for link optimization
- Throughput Optimization for long range links
- Advanced modulation techniques for NLOS support
- XPIC Technology for improving the capacity of one carrier
- Ethernet 1 +1 Ring Protection Switching
- Asymmetric/Symmetric Bandwidth allocation
- Long Range Link Applications up to 155 miles (250 Km)
- Native TDM transport
- Carrier class radio for extreme environment -60 to 230C





Applications:

- High-speed Wireless Backhaul
- T1/E1 leased-line replacement
- Single-hop, long-range line-of-sight links
- Cost-effective network redundancy
- Mobile Cellular Backhaul
- CCTV - Video Surveillance and IPTV Backhaul

ODU RADIO ESPECIFICATIONS:

RF Band	4.9GHz Band: 4940-4990MHz (public Safety Band) 5GHz Band: 5150-5850MHz (*) (*)programmable for different country regulations
Channel Size	Configurable 5, 10, 20 & 40MHz with DFS enabling
Max Transmit Power	28 dBm with TPC functionality (*) (*)programmable for different country regulations
Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM) con Adaptive Mdulation & Coding Scheme y NLOS Support
Receiver Sensitivity	Adaptive, varying between -96 dBm and -72 dBm according to modulation selected
Error Correction	FEC, ARQ
Duplexing Scheme	TDD - Dynamic Time Division Duplex (Single RF) FDD - Dynamic Frequency Division Duplex (Multiple RF)

WIRELESS PREFORMANCE

Operating Mode	Master & Slave for Dedicated Backhaul Links
Throughput	200 Mbps aggregate
PPS	400,000
Packet Latency	< 2 ms
Range	Up to 155 miles (250Km)
Configuration	1+1 configuration: 1+1 HSB, 1+1 FD, 1+1 SD, XPIC 1+1

ANTENNA

Type	Dual Polarized Directional Antenna
Gain	23 dBi integrated
F/B Ratio	-35dB
3dbm Beamwidth V/H	8 / 8 degrees
VSWR	1.5:1
Connector	N-Type Female Connectors
Lightening Protection	DC grounded
ESD Protection	Grounded incorporated

IDU RADIO ESPECIFICATIONS:

Data Encryption	Hardware Basado AES 128 & 256
QoS	VLAN 802.1p, IEEE 802.1Q

INTERFACE TDM

Number of Ports	16, 8, 4 ports
E1 Interface	TDM E1 up to 16x E1
Framing	Unframed (transparent)
Standards Compliance	ITU-T G.703, G.826
Line Code	E1: HDB3 @ 2.048 Mbps; T1: B8ZS/AMI @ 1.544 Mbps
Jitter & Wander	According to ITU-T G.823, G.824

ETHERNET INTERFACE

Protocol	IEEE802.3 / 802.3u
FastEthernet	1x 10/100 Mbps (RJ-45)—auto MDI/MDIX switching
G-Ethernet	1X10/100/1000BaseT
VLAN Support	Transparent
Bridge	Layer 2, self-learning of up to 2047 MAC addresses (IEEE 802.1Q), Hub/Bridge selectable
Ethernet Function	Flow control (IEEE 802.3x), Link aggregation group (LAG), Adding, deletion, and exchange VLAN tags (IEEE 802.1q/p)

Management

System Management	Web GUI, SSH, SNMP v1/2c/3 with traps supporting MIBs
Software	Netkrom NMS proprietary software upgradable
Link Parameters	Antenna audio alignment and RSSI Signal levels, Site Survey Radio and Ethernet Traffic Statistics Incorporated Spectrum analyzer

PHYSICAL

Dimensions	ODU: 16in x 16in x 16in (40.6cm x 40.6cm x 40.6cm) IDU: 17in x 8.2in x 1.7in (43.6cm x 21cm x 4.4cm)
Weight	ODU: 25lb (11.34kg) IDU: 3.3b (1.5kg)
Console Port	One Serial DB9 standard
Power Connections	-20 to -60VDC
Operating Temperature	Enclosure Seal -60C to 230C
Enclosure	Industrial Die-Cast Thermal Aluminum, NEMA-6 / IP-67
Heat Dissipation	Fan cooling
EMC Certificate	FCC Part 15/UL and ETSI 300/328/CE

Ordering Information:

- **BH-1000** WaveKROM Backhaul 200Mbps FDD/TDD Wideband 4.9 to 6.1 GHz 600mW Complete PTP with 23 dBi dual polarized integrated antenna