



The **InfiLINK 2x2 Family** of products was among the very first radio solutions to introduce MIMO technology for Broadband Wireless Access, and has continued ever since to set new standards across the industry for throughput, spectrum optimisation, efficiency, Quality of Service and system reliability. The InfiLINK 2x2 3 GHz is a high-performance broadband wireless point-to-point solution designed to operate in licensed 3.1 to 4.0 GHz frequency bands. The various products within this family have been designed primarily to cater for the specific requirements of local authorities, service providers or other organizations that have purchased WiMAX licences. They enable them to deploy more efficient and scalable networks for data, video and voice, offering up to five times the throughput of existing systems.

The inherent features built into our 3 GHz solutions are key enablers in licence-exempt backhauls for CCTV/ IP surveillance systems, Wireless-ISP networks, high-capacity corporate connectivity and last-mile provisioning, as well as for backing up Free Space Optics (FSO) and microwave links.

2X2 TECHNOLOGY (MIMO—Multiple Input / Multiple Output)

MIMO 2x2 stands for Multiple Input / Multiple Output innovative technology and it requires the use of two antennas at both the transmitter and receiver to improve communication performance.

Applications

- ▶ GSM/3G/LTE High-capacity backhaul
- ▶ WISP infrastructure backhaul and internet PoP for remote locations
- ▶ Building-to-building or LAN-to-LAN connectivity at Fast Ethernet speeds
- ▶ Redundant Cellular backhaul
- ▶ Cost-effective alternatives to legacy microwave links
- ▶ NLOS and nLOS configurations
- ▶ Reliable backup for fibre lines, high-speed FSO or millimetre-wave links

InfiLINK 2x2 3.1 – 4.0 GHz Frequency Bands



Key Features and Highlights

- ▶ Available in 3.1 to 4.0 GHz frequency bands
- ▶ High spectral efficiency 6.5 Bit/s/Hz
- ▶ Multiple Input - Multiple Output (MIMO 2x2) innovative technology
- ▶ “Pay as you grow” software upgradeable features
- ▶ High-capacity - up to 280 Mbps effective throughput
- ▶ Channel width: 3.5/5/7/10/14/15/20/28/30/40 MHz
- ▶ Operational distances in excess of 80 km
- ▶ LOS (Line-Of-Sight) and NLOS (Non-Line-of-Sight)
- ▶ Advanced Quality-of-Service Support
- ▶ Robust design

Solution Benefits

- ▶ Maximize your investment in the licensed 3 GHz spectrum by offering improved throughput, spectral efficiency and a wider range of services and applications
- ▶ Transmission in LOS, nLOS and NLOS configurations with up to 280 Mb/s effective throughput
- ▶ Proven field reliability & robustness, based on InfiNet’s well-known InfiLINK 2x2 product family
- ▶ Low Cost entry and “pay as you grow” model to easily up-scale capacity
- ▶ Class-leading equipment span & reach
- ▶ Simple integration into existing infrastructure
- ▶ Significantly reduced total cost of ownership (TCO)



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|---------------------------------|--|---|---|--|
| RECOMMENDED APPLICATIONS | <ul style="list-style-type: none"> ▶ GSM/3G/LTE high-capacity backhaul ▶ WISP infrastructure backhaul ▶ WISP Internet POP for remote areas ▶ LAN-to-LAN connectivity at Fast Ethernet speeds ▶ Ultra-high spectral efficiency backhaul ▶ A cost-effective alternative for legacy microwave links | | <ul style="list-style-type: none"> ▶ Reliable backup for fiber lines, high-speed FSO or millimeter-wave links ▶ High-capacity CCTV backhaul ▶ A cost-effective alternative for legacy microwave links ▶ Lightweight high spectral efficiency backhaul ▶ Redundant Cellular backhaul, Ethernet/IP transport | |
| PRODUCT FAMILY | InfiLINK 2x2 3 GHz PRO | | InfiLINK 2x2 3 GHz LITE | |
| Model | R5000-Mmx | R5000-Omx | R5000-Smn | R5000-Lmn |
| Device description | High-capacity integrated 22 dBi dual-polarization antenna point-to-point backhaul | High-capacity external antenna point-to-point backhaul | Medium-capacity lightweight integrated 19 or 22 dBi dual-polarization antenna point-to-point backhaul | Medium-capacity lightweight external antenna point-to-point backhaul |
| Performance | <ul style="list-style-type: none"> • 300 Mbps (Up to 280 Mbps net throughput) | | <ul style="list-style-type: none"> • 8 Mbps (up to 8 Mbps net) • 50 Mbps (up to 50 Mbps net) • 300 Mbps (up to 180 Mbps net) License upgradeable | |
| Distance | <ul style="list-style-type: none"> • Middle-to-long range (30+ km) | <ul style="list-style-type: none"> • Long range (80+ km with high-gain external antenna) | <ul style="list-style-type: none"> • 19 dBi antenna: short-to-middle range (up to 5-10 km) • 22 dBi antenna: middle range (7-12 km) | <ul style="list-style-type: none"> • Long range (up to 60 km with high-gain external antenna) |
| Antenna | <ul style="list-style-type: none"> • 22 dBi dual-pol integrated antenna | <ul style="list-style-type: none"> • 2 x N-type (Female) connectors for external antenna | <ul style="list-style-type: none"> • Integrated 19 or 22 dBi Dual-polarization Antenna | <ul style="list-style-type: none"> • 2 x N-type (Female) connectors for external antenna |
| Radio | <ul style="list-style-type: none"> • Radio technology: MIMO 2x2 with OFDM 64/128 • Modulation types: BPSK ½ to QAM64 5/6 • Transmit power: up to 23 dBm • Receiver sensitivity: -67..-97 dBm • Frequency bands: <ul style="list-style-type: none"> › 3.1-3.4 GHz › 3.4-3.7 GHz › 3.7-3.9 GHz * › 3.9-4.0 GHz • Channel bandwidth: 3.5/5/7/10/14/15/20/28/30/40 MHz • Center frequency adjustment step: 125 kHz • Channel duplex: TDD <p>* Currently under development</p> | | | |
| Wired interfaces | <ul style="list-style-type: none"> • Gigabit Ethernet port (10/100/1000 Base-T) RJ-45 connector • Serial port (RS-232) | | <ul style="list-style-type: none"> • 2x Fast Ethernet (10/100 Base-T) PoE output at the second Ethernet port RJ-45 connector | |
| Power consumption | <ul style="list-style-type: none"> • Consumption: Up to 12 Watts • Power options: 110-240 VAC @ 50/60 Hz ±43..56 VDC IEEE 802.3 at | | <ul style="list-style-type: none"> • Consumption: Up to 7 Watts • Power options: 110-240 VAC @ 50/60 Hz +9..56 VDC | |

| PRODUCT FAMILY | InfiLINK 2x2 PRO | | InfiLINK 2x2 LITE | |
|----------------------------|---|---|--|---|
| Model | R5000-Mmx | R5000-Omx | R5000-Smn | R5000-Lmn |
| Form factor and dimensions | Outdoor Unit (ODU) R5000-Mmx 22 dBi antenna  370 x 370 x 85 mm, 3.7 kg | Outdoor Unit (ODU) R5000-Omx External antenna  240 x 240 x 51 mm, 2.3 kg | Outdoor Unit (ODU) R5000-Smn 22 dBi antenna  371 x 371 x 73 mm, 2.0 kg | Outdoor Unit (ODU) R5000-Lmn External antenna  240 x 240 x 51 mm, 1.6 kg |
| | Indoor Unit (IDU-BS-G) 140 x 45 x 40 mm, 0.3 kg | Indoor Unit (IDU-BS-G) 140 x 45 x 40 mm 0.3 kg | R5000-Smn 19 dBi antenna  305 x 305 x 60 mm, 2.0 kg | Indoor Unit (IDU-CPE) 85 x 76 x 36 mm 0.15 kg |
| | | | Indoor Unit (IDU-CPE) 85 x 76 x 36 mm, 0.15 kg | |
| | | | | |

Specification

RADIO

- ▶ Voice/RTP Aware Superpacketting
- ▶ Automatic Bitrate Control
- ▶ Automatic Transmit Power Control
- ▶ Automatic Distance Learning
- ▶ Channel Time Adjustment
- ▶ Spectrum Analyzer mode
- ▶ Channel testing tools

ENVIRONMENTAL

- ▶ Outdoor Units:
-40..+60°C,
100% humidity, condensing
- ▶ Indoor Unit:
0..+40°C,
95% humidity, non-condensing

MAC

- ▶ Dynamic adaptive Polling
- ▶ Pseudo-radio Interface
 - unique InfiNet Wireless feature to join InfiNet Wireless networks via 3rd party equipment (Wired Ethernet segments, IP clouds)
- ▶ Automatic over-the-air firmware upgrade

NETWORKING

- ▶ Ethernet-over-IP tunneling
- ▶ ARP protocol support
- ▶ MAC/IP filtering
- ▶ RIPv2 / OSPFv2 /static routing
- ▶ Tunneling (Ethernet-over-IP, IP-over-IP)
- ▶ L2/L3 Firewall
- ▶ NAT(multipool, H.323-aware)
- ▶ DHCP client/server/relay

QUALITY-OF-SERVICE

With many QoS permutations, QoS implementation works transparently in the network based on IEEE 802.1p standard as well as ToS/DiffServ, guaranteeing optimal performance under any load conditions and lowest jitter/delays for priority traffic.

- ▶ 16 priority queues
- ▶ IEEE 802.1p support
- ▶ IP TOS / DiffServ support
- ▶ Full voice support
- ▶ Traffic limiting (absolute, relative, mixed)
- ▶ Traffic redirection

SECURITY FEATURES

- ▶ Storm / flood protection
- ▶ Password protection
- ▶ Secure command-line access via SSH protocol

