

# SkyMAN NG™ UNIVERSAL WIRELESS PLATFORM



## InfiLINK 2x2

### Multiplies link capacity and distance

Introducing new member of the award-winning SkyMAN NG Universal Wireless Platform

High-performance broadband wireless backhaul solution with greater effective throughput, increased link availability and operating distances in both LOS and NLOS conditions.

#### System description

InfiLINK offers wide range of licensed and unlicensed frequency band and software-upgradeable capacity options, in modular, single and dual-radio split system design, connectorized or with integrated antennas, for a broad array of applications including

#### Key Features and Highlights

- Available in multiple frequency bands including 2.2-2.3, 2.4, 4.9, 5.1-5.3, 5.4 and 5.8GHz
  - High capacity and spectrum efficiency – up to 300Mbps, equivalent to STM-1
  - 5/10/20/40 MHz selectable channel size to maintain cost-effective spectrum usage and reduce interference
  - Long-range backhauls reaching distances of more than 60 km
  - Best-in-Industry set of networking features
  - Secure, reliable wireless communication even in challenging environments
  - Modular, scalable architecture
- WISP infrastructure, matching today's capacity of remote base station
  - Enterprise or campus, building-to-building connectivity at FastEthernet speeds
  - Redundant Cellular backhaul, multiple E1/T1 TDM and Ethernet/IP transport
  - Cost-effective alternative for legacy microwave links
  - Long-range backhauls reaching distances of more than 60 km
  - NLOS backhauls using lower frequency bands
  - Reliable backup for high-speed FSO and millimeter-wave links or fiber lines

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## Key Features and Highlights

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Available in multiple frequency bands including 2.2-2.3, 2.4, 4.9, 5.1-5.3, 5.4 and 5.8GHz	<ul style="list-style-type: none"><li>▪ several region-specific output power versions available, software adjustable</li><li>▪ Dynamic Frequency Selection to use the least occupied channels at unlicensed bands</li><li>▪ Radar Detection and avoidance to match FCC/CE regulations</li></ul>
High capacity and spectrum efficiency—up to 300Mbps, equivalent to STM-1	<ul style="list-style-type: none"><li>▪ software-upgradeable, capacity options from 13 to 300Mbps to lower startup costs</li><li>▪ 5/10/20/40 MHz selectable channel size to maintain cost-effective spectrum usage and reduce interference</li><li>▪ flexible bandwidth allocation - symmetric or fully asymmetric, fixed or dynamically adjusted</li><li>▪ adaptive modulation to ensure error-free operation – link conditions are constantly monitored in both directions</li></ul>
Long range	<ul style="list-style-type: none"><li>▪ can operate at further distances than conventional single-radio links</li><li>▪ multiple radios allow to use less power and antenna size to reach remote site, reducing roll-out costs</li></ul>
Best-in-Industry set of networking features	<ul style="list-style-type: none"><li>▪ intelligent Layer 2 switch</li><li>▪ integrated router to reduce network overhead</li><li>▪ QoS enforcer</li></ul>
Secure, reliable wireless communication even in challenging environments	<ul style="list-style-type: none"><li>▪ minimized downtime during extra fade periods by using diverse, physically separated antennas – up to 4 separate signal paths</li><li>▪ always-on mutual authentication between link ends based on digital signatures and keys rather than MAC addresses</li><li>▪ out-of-band and in-band, secure, password-protected management interface, GUI and SNMP</li><li>▪ “1+1 Hot-Stanby” - link seamlessly switches to the second set of equipment in case of hardware failure*</li><li>▪ small-footprint antenna, robust outdoor unit design ensuring long-term operation all-weather operation</li></ul>
Modular, scalable architecture	<ul style="list-style-type: none"><li>▪ Separate indoor and outdoor units, Ethernet only or Ethernet with nxE1/T1 ports</li><li>▪ Integrated or external detachable antennas at the outdoor unit</li><li>▪ Easy-to-deploy—mounting hardware and form-factor</li><li>▪ Seamless integration into the existing SkyMAN network</li><li>▪ Automatic and manual, fault-proof over-the-air firmware upgrade</li></ul>

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## Technical Data Sheet

<b>Radio Interfaces Options</b>	<b>Modulation types:</b> OFDM with BPSK, QPSK, QAM16, QAM64	
	<b>Channel widths supported:</b> 40MHz, 20 MHz, 10 MHz, 5 MHz	
	<b>Maximal net throughput:</b> up to 300 Mbps (2x20 MHz channels, non-compressible data)	
<b>Operating frequencies:</b>	2.4 GHz radio	5-6 GHz radio
	<ul style="list-style-type: none"> <li>- 2.270 – 2.412 GHz</li> <li>- 2.412 – 2.482 GHz</li> </ul>	<ul style="list-style-type: none"> <li>- 4.950 – 4.990 GHz</li> <li>- 5.150 – 5.250 GHz</li> <li>- 5.250 – 5.350 GHz</li> <li>- 5.470 – 5.725 GHz</li> <li>- 5.725 – 5.845 GHz</li> <li>- 5.865 – 5.920 GHz</li> </ul>
<b>Output power:</b>	- up to 200 mW (23 dBm)	up to 500 mW (27 dBm), high-power modification  up to 63 mW (18 dBm), regular-power modification  1W EIRP, European version
<b>Sensitivity:</b>	-73 dBm ... – 91 dBm	-71 dBm ... -94 dBm
<b>Typical link distance:</b>	60+ km (with external high-gain antennas and high-power models, LOS)	60+ km (external high-gain antennas and high-power models, LOS)  30+ km (integrated flat panel antennas and high-power models, LOS)

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## Product Summary

<b>Radio Interface Connection</b>	2xN-type female or internally connected antenna	<b>Networking Features</b>	RIPv2 / OSPFv2 /static routing
			Tunneling (Ethernet over IP capable)
	multiple antenna system		IP-Firewall
	superpacketing (voice/RTP aware)		NAT (multipool, H.323-aware)
	channel time adjustment		DHCP client/server/relay
	DFS and Radar Detection (where applicable)		QoS enforcer supports frame/packet classification and traffic limiting based on
	adaptive modulation control		<ul style="list-style-type: none"> <li>▪ IP ToS / DSCP / 802.1p tags</li> <li>▪ VLAN/IP/MAC address and protocol/port combinations</li> <li>▪ RTP voice and TDM payload</li> </ul>
	Integrated Flat Panel Antenna (4.920 – 6.060 GHz only)		Mutual key-based authentication
	23 dBi gain		Storm / flood protection
	Dual linear polarization		Password protection
	Radiation pattern width: 9 degrees vertical, 9 degrees horizontal		Protocol messages encryption
	F/B ratio: 30 dB (min)		Over-the-air payload encryption (optional)
	Wired network connection:		SNMPv1/SNMPv3 support MIB II, private MIB)
	1x or 2xEthernet 10/100BaseT (RJ-45)		Configurable SNMP Traps
	Wired network interface: IEEE 802.3 CSMA/CD, Ethernet Blue Book		16 QoS priorities mapping (without third-party routers)
	Serial interface:		Telnet
	RS-232 System Console Port		Windows-based GUI configuration and monitoring tool
	Framing: Framed / Unframed (transparent)		Remote Shell
	Number of E1 ports: 2, 3, 4		Up to 20 Watts (with IDU-5000-CPE/IDU-5000-RJ for SkyMAN 0302.2 and SkyMAN 0102.1)
	Standard Compliance ITU-T G.703, G.704, G.823		Up to 30 Watts (with IDU-5000-SCR for SkyMAN 0102.3 and SkyMAN 0302.3)
	Line Code E1: HDB3 @2.048 Mbps		Up to 40 Watts (with IDU-5000-E1SCR for SkyMAN 0102.3 and SkyMAN 0302.3)
	Line Code T1: B8ZS @1.544 Mbps		Consumption: 110-240 VAC @ 50/60 Hz
	Latency : 8 msec (typical)		Outdoor Units: -40..+60C, 100% humidity, condensing (exceeds IP65 rating)
	Connector : RJ-45		Indoor Unit: 0..+40C, 95% humidity, non-condensing
	Jitter/Wander Compliance: G.823, G.824		
	Accurate TDM clock recovery		
	Loopback, internal, external and adaptive timing		
	Separate CAS data channel		
	DM data is strictly prioritized over Ethernet traffic		
	ARP filter/proxy		
	MAC/IP filtering		
	Full-fledged 2 <sup>nd</sup> layer switch		
	Intelligent Layer 2 switch		
	<ul style="list-style-type: none"> <li>▪ 802.1q VLAN support, transparent, or frame tagging and re-tagging</li> <li>▪ multiple trunk groups</li> <li>▪ automatic storm/flood/bridge loop protection</li> </ul>		
	Pseudo-radio interface		
	(Backhauls connected via wired interfaces can be kept in the same management domain)		

# InfiLINK 2x2



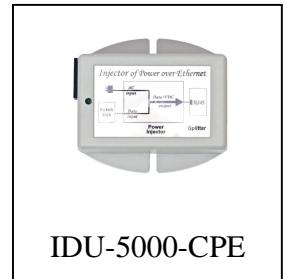
InfiLINK 2x2 ODU



IDU-5000-E1SCR



IDU-5000-RJ



IDU-5000-CPE

## Factor information and Dimensions

Outdoor Unit (ODU), N-type Connector External Antenna	Outdoor Unit (ODU) integrated 23 dbi Flat Panel Antenna (4.920–6.060 GHz only)	Carrier-grade Indoor Unit (with E1 ports)	Carrier-grade Indoor Unit (without E1 ports)	Enterprise Indoor Unit (without E1 ports)
<ul style="list-style-type: none"> <li>• Dimensions: 240 x 240 x 51 mm</li> <li>• Weight: 2.1 kg</li> </ul>	<ul style="list-style-type: none"> <li>• Dimensions: 370 x 370 x 85 mm</li> <li>• Weight: 3.7 kg</li> </ul>	<ul style="list-style-type: none"> <li>• Dimensions: 422 x 240 x 44 mm (19" 1U)</li> <li>• Weight: 2.2 kg</li> <li>• Part numbers: SkyMAN 0070/4.1/5.4 and SkyMAN 0070/4.1/5.2</li> </ul>	<ul style="list-style-type: none"> <li>• Dimensions: 217 x 200 x 50 mm</li> <li>• Weight: 1 kg</li> <li>• Part number: IDU-5000-RJ (RJ-45 connector for service cable), IDU-5000-SCR (screw lock connector for service cable)</li> </ul>	<ul style="list-style-type: none"> <li>• Dimensions: 50 x 46 x 23 mm</li> <li>• Weight: 0.14 kg</li> <li>• Part number: IDU-5000-CPE</li> </ul>



### About InfiNet Wireless

InfiNet Wireless is a leading global vendor of LastMile connectivity solutions utilizing Fixed Broadband Wireless Access (FBWA) and emerging WiMAX technologies. InfiNet Wireless is a member of the WiMAX Forum and is committed to bringing WiMAX-compliant products to market based on the emerging 802.16 standards. InfiNet has earned a clear leadership position in fixed wireless installations in Russia and Eastern Europe and has more than 300 carrier-class wireless networks throughout the world.

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