

## Solution Benefits

- Rapid & simple deployment
- Low entry cost and remote capacity upgrades
- Seamless integration into existing infrastructures Saving on third-party networking equipment
- Extra ROI achieved through the provision of service levels agreements
- Low running costs for servicing and maintenance
- Flexible frequency planning and high spectral efficiency
- Ultra-low latency and jitter, optimal for video and voice



## The InfiMAN Family

### Introduction

The InfiMAN range of products from InfiNet Wireless is a family of Point-to-Multipoint solutions designed for reliable connectivity, and available in both licensed and unlicensed frequency bands.

These solutions come with a number of powerful features that significantly enhance performance, such as unconditional media-applications traffic (VoIP, video, etc), prioritization of data types, flexible Quality-of-Service manager, etc., whilst still providing net throughputs of up to 34 Mbps throughput per base station Sector and operational distances in excess of 25 km.

The InfiMAN solutions are ideally suited for creating large city-wide or regional transmission and access networks, and have been deployed by many of our customers around the world in campus-style topologies or for the connectivity of distant company branches or warehouses. They are an excellent choice for multi-site companies looking to improve efficiency and save costs by replacing legacy networking technologies or by moving away from traditional leased lines from their local operators.

### Applications

Some typical applications of the InfiMAN family include:

- WISP and Operator's infrastructure
- Enterprise and Small Business networks
- Government, Banks, University and School networks
- CCTV and Video-surveillance infrastructure
- Last-mile subscriber connectivity
- Cost-efficient rural connectivity

### Product Key Features and Highlights

- Available in 2.3 – 2.6 GHz and 4.9 – 6.4 GHz
- "Pay as you grow" software upgradeable capacity feature for Subscriber Terminals
- Up to 34 Mbps per Base Station Sector net throughput
- 5/10/20 MHz channel widths
- Operational distances in excess of 25 km
- LOS (line-of-sight) and NLOS (non-line-of-sight) operability
- Advanced Quality-of-Service Support
- Robust design
- **New!** CCTV optimized Subscriber Terminals with PoE output for camera power supply

## Equipment

System components	InfiMAN Base Stations		InfiMAN Subscriber Terminals	
	R5000-M	R5000-O	R5000-Sc	R5000-Lc
Model				
Device description	Medium-capacity Integrated 16 dBi, 90 Deg Sector Antenna Point-to-Multipoint Base Station	Medium-capacity External Antenna Point-to-Multipoint Base Station	Medium-capacity Integrated 22 dBi Antenna Point-to-Multipoint Subscriber Terminal	Medium-capacity External Antenna Point-to-Multipoint Subscriber Terminal
Performance	<ul style="list-style-type: none"> <li>Base Station Sector capacity: 34 Mbps</li> </ul>	<ul style="list-style-type: none"> <li>Base Station Sector capacity: 34 Mbps</li> </ul>	<ul style="list-style-type: none"> <li>12/36 Mbps throughput options (license upgradeable)</li> </ul>	<ul style="list-style-type: none"> <li>12/36 Mbps throughput options (license upgradeable)</li> </ul>
Distance	<ul style="list-style-type: none"> <li>Middle-to-long-range (25+ km)</li> </ul>	<ul style="list-style-type: none"> <li>Middle-to-long range (20+ km)</li> </ul>	<ul style="list-style-type: none"> <li>Middle range (15+ km)</li> </ul>	<ul style="list-style-type: none"> <li>Middle-to-long range (25+ km)</li> </ul>
Radio	<ul style="list-style-type: none"> <li>Radio technology: OFDM 64</li> <li>Modulation types: BPSK ½ to QAM64 3/4</li> <li>Transmit power: up to 18 dBm</li> <li>Receiver sensitivity: -71.. -95 dBm</li> <li>Frequency bands: 4.9-6.4 GHz</li> <li>Channel bandwidth: 5/10/20 MHz</li> <li>17/16/15 dBi integrated sector antenna 60/90/120 degrees</li> </ul>	<ul style="list-style-type: none"> <li>Radio technology: OFDM 64</li> <li>Modulation types: BPSK ½ to QAM64 3/4</li> <li>Transmit power: up to 18 dBm</li> <li>Receiver sensitivity: -71.. -95 dBm</li> <li>Frequency bands: 2.3-2.6 and 4.9 – 6.4 GHz</li> <li>Channel bandwidth: 5/10/20 MHz</li> <li>1 x N-type (Female) connector</li> </ul>	<ul style="list-style-type: none"> <li>Radio technology: OFDM 64</li> <li>Modulation types: BPSK ½ to QAM64 3/4</li> <li>Transmit power: up to 18 dBm</li> <li>Receiver sensitivity: -71.. -95 dBm</li> <li>Frequency bands: 4.9-6.4 GHz</li> <li>Channel bandwidth: 5/10/20 MHz</li> <li>Integrated 22 dBi flat panel antenna</li> </ul>	<ul style="list-style-type: none"> <li>Radio technology: OFDM 64</li> <li>Modulation types: BPSK ½ to QAM64 3/4</li> <li>Transmit power: up to 18 dBm</li> <li>Receiver sensitivity: -71.. -95 dBm</li> <li>Frequency bands: 2.3-2.6, 4.9-6.4 GHz</li> <li>Channel bandwidth: 5/10/20 MHz</li> <li>1 x N-type (Female) connector</li> </ul>
Wired interfaces	<ul style="list-style-type: none"> <li>1 x Fast Ethernet (10/100 Base-T) RJ-45 connector</li> <li>Serial port (RS-232)</li> </ul>	<ul style="list-style-type: none"> <li>1 x Fast Ethernet (10/100 Base-T) RJ-45 connector</li> <li>Serial port (RS-232)</li> </ul>	<ul style="list-style-type: none"> <li>1 x Fast Ethernet (10/100 Base-T) RJ-45 connector</li> <li>1x Fast Ethernet PoE (802.3af) output port (optionally) RJ-45 connector</li> <li>Serial port (RS-232)</li> </ul>	<ul style="list-style-type: none"> <li>1 x Fast Ethernet (10/100 Base-T) RJ-45 connector</li> <li>Serial port (RS-232)</li> </ul>
Power consumption	<ul style="list-style-type: none"> <li>Up to 12 Watts</li> <li>Consumption: 110-240 VAC @ 50/60 Hz</li> </ul>	<ul style="list-style-type: none"> <li>Up to 12 Watts</li> <li>Consumption: 110-240 VAC @ 50/60 Hz</li> </ul>	<ul style="list-style-type: none"> <li>Up to 7 Watts</li> <li>Consumption: 110-240 VAC @ 50/60 Hz</li> </ul>	<ul style="list-style-type: none"> <li>Up to 7 Watts</li> <li>Consumption: 110-240 VAC @ 50/60 Hz</li> </ul>
Form factor and dimensions	<ul style="list-style-type: none"> <li>Outdoor Unit (ODU): 240 x 573 x 100 mm 2.2 kg</li> <li>Indoor Unit (IDU-BS): 124 x 72 x 38 mm 0.3 kg</li> </ul>	<ul style="list-style-type: none"> <li>Outdoor Unit (ODU): 240 x 240 x 51 1.7 kg</li> <li>Indoor Unit (IDU-BS): 124 x 72 x 38 mm 0.3 kg</li> </ul>	<ul style="list-style-type: none"> <li>Outdoor Unit (ODU): 305 x 305 x 60 mm 2.2 kg</li> <li>Indoor Unit (IDU-CPE): 85 x 76 x 36 mm 0.15 kg</li> </ul>	<ul style="list-style-type: none"> <li>Outdoor Unit (ODU): 240 x 240 x 51 mm 1.6 kg</li> <li>Indoor Unit (IDU-CPE): 85 x 76 x 36 mm 0.15 kg</li> </ul>

## Features

### RADIO

- Voice/RTP Aware Superpacketting**
  - to minimize jitter and latency for multimedia applications
- DFS**
  - for Radar Detection and intelligent search for cleanest channel within a regulatory domain
- Automatic Bitrate Control**
  - to ensure a 100% stable link irrelevant of changes in external conditions
- Automatic Transmit Power Control**
  - to track and keep optimal input signal level to maximize performance for each link and reduce overall interference within a given transmit power and EIRP limitations
- Automatic Distance Learning**
  - to optimize performance for any link distances from tens of meters to 100 km and above
- Channel Time Adjustment**
  - to improve performance on heavily loaded links
- Spectrum Analyzer mode**
  - for interference detection and avoidance
- Channel testing tools**
  - channel performance measurement
  - advanced diagnostics

### MAC

- Dynamic adaptive Polling**
  - Centralized marker grant mode
  - Dynamically takes into account channel activity
  - Permanent channel testing
- 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**

### MANAGEMENT FEATURES

- Web-interface**
  - basic settings
  - channel diagnostics: spectrum analysis, antenna alignment, channel throughput measurement
  - unit and RF links monitoring
  - maintenance: firmware upgrade, license and configuration import/export
  - tech support diagnostic reports generation
  - command-line access
- Command-line interface for in-depth configuration and diagnostics accessible via:**
  - secure shell (SSH)
  - telnet
  - serial port
  - remote shell
- SNMPv1 / SNMPv3 support** (MIB II, private MIB)
- Configurable SNMP Traps**

### STANDARD COMPLIANCE

- Radio**
  - EN 301 893 v.1.5.1
  - EN 302 502 v.1.2.1
- EMC**
  - EN 301 489-1
  - EN 301 489-17
- Safety**
  - EN 60 950-1:2006
- RoHS**
  - Directive 2002/95/EC

### NETWORKING

- Ethernet-over-IP tunneling**
- ARP protocol support**
- MAC/IP filtering**
- Fully-fledged Layer 2 switch:**
  - Transparent transport for any type of Ethernet traffic including MPLS, stacked VLANs, etc.
  - Multiple switching groups
  - Full VLAN support including Q-in-Q (IEEE 802.1q and 802.1ad)
  - STP/rSTP support
  - IGMP Snooping with Querrier mode
  - Trunk groups support
- RIPv2 / OSPFv2 /static routing**
- Tunneling** (Ethernet-over-IP, IP-over-IP)
- L2/L3 Firewall**
- NAT**(multipool, H.323-aware)
- DHCP client/server/relay**

### SECURITY FEATURES

- Line-speed AES128 over-the-air encryption**
- Storm / flood protection**
- Password protection**
- Protocol messages encryption**
- Secure command-line access via SSH protocol**

### QUALITY-OF-SERVICE

- With many QoS permutations, QoS implementation works transparently in the network based on IEEE802.1p standard as well as ToS/Diffserv, guaranteeing perfect performance under any load and lowest jitter/delays for priority traffic.
- Quality-of-Service features:**
- 16 priority queues**
  - IEEE 802.1p support**
  - IP TOS / Diffserv support**
  - Full voice support**
  - Traffic limiting** (absolute, relative, mixed)
  - Traffic redirection**

### ENVIRONMENTAL

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