



## WinLink™ 1000

Carrier-Class Sub-6GHz Radio Systems

Price & Performance Leadership in Wireless Broadband

### Product Highlights

- High capacity, up to 18 Mbps full-duplex net throughput
- Long range, up to 80 km/50 miles
- TDM and Ethernet over a single wireless link
- Available in various sub-6GHz frequencies
- OFDM technology enables operation in nLOS
- Available in PtP and MPtP architectures
- Full local and remote network management capabilities from centralized location
- Monitored Hot Standby for superior reliability

RADWIN's WinLink 1000 family of Point-to-Point wireless broadband solutions deliver carrier-class performance at the most competitive price in the market.

WinLink 1000 solutions pack legacy TDM and Ethernet services over the 2.3 - 2.7GHz and 4.9 - 6.0GHz spectrum bands, and comply with worldwide standards and regulations including FCC, ETSI, IC Canada, WPC India and MII China.

# WinLink™ 1000

Carrier-Class Sub-6GHz Radio Systems

## Key Benefits

- Industry proven solution; thousands of systems installed at leading carriers globally
- Extremely simple to install and maintain
- Available in license exempt frequencies, eliminating regulatory overhead and reducing network ramp-up time
- Significantly reduces CAPEX and OPEX

WinLink 1000 is ideally suited to meet the connectivity needs of cellular operators, service providers, enterprises and private networks, providing high capacity connectivity of up to 18 Mbps full-duplex net throughput at ranges of up to 80 km/50 miles. Available in multiple frequency bands and configurations, the cost-effective solutions are extremely simple to install and maintain, and are typically up and running in less than an hour.

RADWIN's WinLink 1000 solutions can also be installed in a unique Multiple-Point-to-Point architecture; multiple units are deployed in one hub site location, from where they provide a dedicated high-capacity connection to each remote site.

The Multiple-Point-to-Point concept builds on RADWIN's unique Hub Site Synchronization (HSS) feature, which synchronizes the transmission of collocated WinLink 1000 radios thus removing potential interference commonly experienced with collocated TDD radios.

To provide superior reliability, WinLink 1000 products are available with Monitored Hot Standby 1+1 Support that grants protection both for equipment failure and loss of air interface.

## Typical Applications

### Backhaul

WinLink 1000 systems power a range of backhaul applications, including:

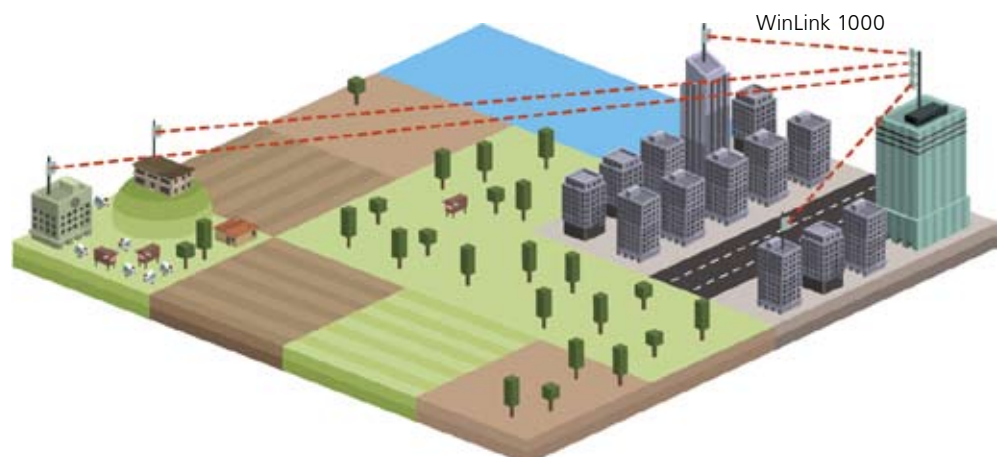
- Cellular backhaul
- Backhaul to access points (for metro WiFi deployments)
- Backhaul from points of presence (PoPs) of wireless ISPs to backbone network

### Broadband Access

WinLink 1000 provides a broadband access solution, offering Ethernet and E1s/T1s services to end-users.

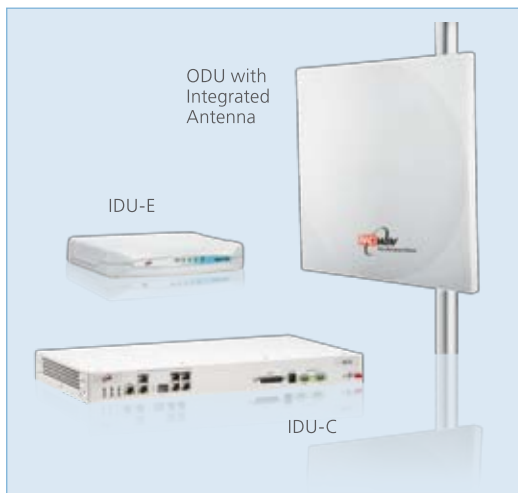
### Remote Sites Connectivity

For enterprises and organizations with multiple sites, WinLink 1000 offers cost-effective and transparent connectivity for LAN and PBX systems.



Multiple-Point-to-Point Deployment

# WinLink™ 1000 Specifications



Configuration	
<b>Architecture</b>	Indoor Unit: IDU-E (1/2x19"; 1U) IDU-C (19", 1U) Outdoor Unit: ODU with integrated antenna, ODU for connection to external antenna
<b>IDU to ODU Interface</b>	Outdoor CAT-5e cable; Maximum cable length: 100m
Radio	
<b>Frequency Bands</b>	2.3 - 2.7 GHz 4.9 - 6.020 GHz
<b>Capacity</b>	18 Mbps full-duplex net throughput
<b>Channel Bandwidth</b>	5/10/20 MHz*
<b>Duplex Technique</b>	TDD
<b>Modulation</b>	OFDM – BPSK/QPSK/16QAM/64QAM
<b>Max Tx Power</b>	23 dBm*; Configurable
<b>Received Dynamic Range</b>	>60 dB
<b>Error Correction</b>	FEC; k=1/2,2/3,3/4
<b>Encryption</b>	AES 128
Ethernet Interface	
<b>Type</b>	10/100BaseT Interface with Auto-negotiation (IEEE 802.3)
<b>Number of Ethernet Ports</b>	1, 2
<b>Framing/Coding</b>	IEEE 802.3u
<b>Bridging</b>	Self-learning up to 2047 MAC addresses IEEE 802.1q
<b>Traffic Handling</b>	MAC layer bridging, self-learning
<b>Data Latency</b>	3 msec (typical)
<b>Max Frame Size</b>	1800 Bytes*
<b>Line Impedance</b>	100Ω
<b>VLAN ID for Management</b>	Supported*
<b>Connector</b>	RJ-45
TDM Interface	
<b>Framing</b>	Unframed (transparent)
<b>Number of E1/T1 Ports</b>	0, 1, 2, 4
<b>Standard Compliance</b>	ITU-T G.703, G.826
<b>Timing</b>	Independent Tx and Rx timing
<b>Line Code</b>	E1: HDB3 @ 2.048 Mbps T1: B8ZS/AMI @ 1.544 Mbps
<b>Latency</b>	5-20 msec (user configurable); default: 8 msec
<b>Impedance</b>	E1: 120Ω , balanced T1: 100Ω , balanced
<b>Connector</b>	RJ-45
<b>Jitter &amp; Wander</b>	According to ITU-T G.823, G.824
Management	
<b>Management Application</b>	RADWIN Manager
<b>Protocol</b>	SNMP and Telnet
<b>NMS Application</b>	RNMS (RADWIN NMS)
Dimensions	
<b>ODU</b>	With 1ft integrated antenna: 30.5cm(w) x 30.5cm(h) x 5.8cm(d) Weight: 1.5kg/3.3lbs Without antenna: 13.5cm(w) x 24.5cm(h) x 4.0cm(d) Weight: 1.0kg/2.2lbs
<b>IDU-E</b>	23.5cm(w) x 4.5cm(h) x 16.5cm(d) Weight: 0.5kg/1.1lbs
<b>IDU-C</b>	43.6cm(w) x 4.4cm(h) x 21cm(d) Weight: 1.5kg/3.3lbs

\* Values may differ in specific products

# WinLink™ 1000 Specifications

Power and Mounting	
Power Feeding	100-240 VAC, 50/60 Hz; -20 to -60 VDC*
Power Consumption	IDU-E with ODU, 10W max IDU-C with ODU, 14W max
Mounting	Pole or Wall
Environmental	
Outdoor Unit Enclosure	All weather cases; IP67 compliant
ODU Operating Temperatures	-35°C to 60°C / -31°F to 140°F
IDU Operating Temperatures	-5°C to 45°C / 23°F to 113°F
Humidity	ODU: Up to 100% non-condensing IDU: Up to 90% non-condensing

Antennas			
	Gain	Beam Width	Polarization
<b>Integrated Antenna 1ft*</b>	Up to 22dBi	20° or 9°	Linear
<b>External Antenna 2ft</b>	Up to 28dBi	4.5°	Linear
<b>Additional antennas are available upon request</b>			

Regulation	
<b>Frequency Bands</b>	2.300-2.690GHz; 4.940-4.990 GHz; 5.140-6.020 GHz
Radio Regulations	
FCC 47CFR	part 15 subparts B&C and E, part 27 and part 90
IC	RSS-210
ETSI	EN 300 328, EN 301 893, EN 302 502
UK	VNS 2107
Australia	AS/NZS 4771
India	WPC
China	MII
Environmental Regulations	
Safety	EN 60950, IEC 60950, UL 60950, CAN-CSA C22.2 60950
EMC	EN 300 386, EN 301 489, EN 55022, EN 61000, EN 55024, AS/NZS CISPR 22, CAN/CSA-CEI/IEC CISPR 22-02, FCC 47CFR class B part 15 sub-part B
Environmental	IEC 60721 class 4M5 IP67

\* Values may differ in specific products

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