RADWIN 2000 PORTFOLIO

Carrier-class point-to-point solutions

The RADWIN 2000 portfolio offers sub-6 GHz licensed and unlicensed wireless broadband solutions that deliver from 25 Mbps and up to 750 Mbps while operating in the 2.3 to 6.4 GHz bands.

RADWIN 2000 solutions are geared for carrier and vertical markets that require high capacity backhaul and reliable access connectivity.

RADWIN 2000 products incorporate a unique air-Interface to ensure robust link performance as well as high link capacity in adverse conditions such as high interference and near/non line-of-sight scenarios. The air-interface is based on OFDM and MIMO technologies and incorporates unique features such as MIMO/ Diversity auto selection, fast ARQ (Auto Reply upon Request) and dynamic channel bandwidth selection. The RADWIN 2000 PtP series supports collocation of multiple radios on the same tower using GPS synchronization, thus guaranteeing optimal utilization of valuable spectrum and tower space.

RADWIN 2000 units are compact and simple to install and maintain. The products comply with worldwide regulations and standards and are deployed globally in access and backhaul applications by leading carriers, service providers and public and private networks requiring high-capacity connectivity.

RADWIN 2000 Portfolio Highlights

High capacity and long range

- 25 Mbps to 750 Mbps net aggregate throughput
- Pay as you grow capacity
- Long range - up to 120 Km/75 miles
- Native TDM (up to 16 E1s/T1s) + Ethernet

Robust operation

- Telco-grade, operation in harsh environments
- Unmatched performance in noisy spectrum
- Field proven operation in nLOS / NLOS
- Inter & Intra site TDD synchronization to maximize network capacity
- Guaranteed high capacity in short packets

Easy to install and maintain

- Multi-band radio supporting multiple frequency bands on the same platform
- QoS and VLAN capabilities

All-IP Radio Series

RADWIN 2000 D+
Up to 750 Mbps

RADWIN Alpha
2 models available: 50 Mbps | 250 Mbps | 500 Mbps

RADWIN 2000 C+
Up to 250 Mbps

IP and TDM Radio Series

RADWIN 2000 C
Up to 200 Mbps + 16E1s/T1s

RADWIN 2000 A
2 models available: 25 Mbps + 4 E1s/T1s |
50 Mbps + 8 E1s/T1s (upgradable to 100 Mbps)

High Capacity Radios for IP

The RADWIN 2000 radio series assures high spectrum efficiency by employing a QAM 256 modulation scheme. The series utilizes wide channel bandwidth of up to 80MHz for greater link capacity.

Radio performance in adverse path conditions is enhanced as a result of two unique capabilities:

» Dynamic selection of channel bandwidth, per traffic direction - between 80 MHz, 40 MHz and 20MHz - to minimize Interference levels.

» Automatic antenna-mode selection, per traffic direction, between MIMO mode to increase capacity, and Diversity mode to improve link robustness.

In this RADWIN 2000 series, the time division between downlink and uplink traffic is configurable to best fit a variety of applications.

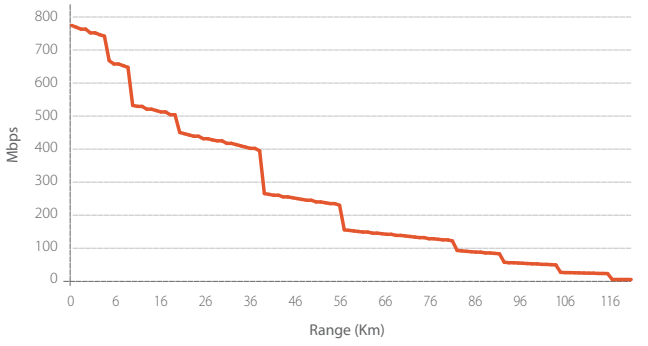
RADWIN 2000 D+

RADWIN 2000 D+ Series radios deliver 750 Mbps

RADWIN 2000 D+ 23dBi

RADWIN 2000 D+ Connectorized

RADWIN 2000 D+ Capacity vs. Range



* 5.8GHz, 80MHz, 32dBi antenna

RADWIN 2000 Alpha

RADWIN 2000 Alpha Series provides a resilient point-to-point link at an all-low price.

RADWIN 2000 Alpha Series radios are available in 3 models:

» 50 Mbps, upgradable to 250 Mbps

» 250 Mbps

» 500 Mbps

RADWIN 2000 Alpha EMB

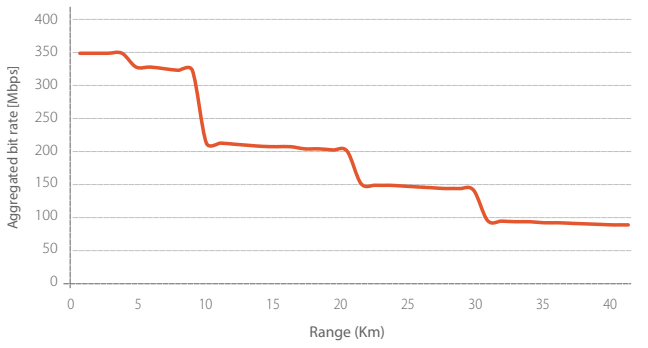
RADWIN 2000 Alpha INT

RADWIN 2000 Alpha Series is available in 5.x and 3.x GHz. Alpha Series in 5.x GHz offers two antenna configurations:

» Alpha EMB connectorized outdoor unit with a 16dBi embedded antenna. 3rd party antennas can be used to extend the range when needed.

» Alpha INT outdoor unit with a 22dBi integrated antenna

RADWIN 2000 Alpha Capacity vs. Range



* 5.8GHz , 80MHz, 22dBi antenna

High Capacity Radios for IP and TDM

RADWIN 2000 C and RADWIN 2000 A Radio Series deliver IP and TDM over the same link and enable seamless migration from legacy TDM backhaul or access to all-IP networks.

In this type of RADWIN 2000 radios, the time division between downlink and uplink traffic can be dynamically modified based on actual traffic, to deliver maximum available capacity.

RADWIN 2000 C

Delivering up to 200 Mbps throughput and up to 16 E1s/T1s, RADWIN 2000 C is ideal for operators seeking a carrier-class solution with guaranteed QoS. RADWIN 2000 C Series is available with a 23dBi integrated antenna or as a connectorized unit.

RADWIN 2000 C
with 23dBi antenna

RADWIN 2000 C
Connectorized

RADWIN 2000 A

RADWIN 2000 A Series radios are available in two models:

» 50 Mbps and up to 8 E1s/ T1s

» 25 Mbps and up to 4 E1s/T1s

Ethernet capacity can easily be upgraded to 100 Mbps via a software key. This assures a low initial investment while securing future capacity growth. RADWIN 2000 A Series is available with a 17dBi or 23dBi integrated antenna or as a connectorized unit.

RADWIN 2000 A with
23dBi antenna

RADWIN 2000 A with 17dBi
or Connectorized antenna

RADWIN 2000 IDUs

IDU-H

Ethernet aggregation
unit for 6 ODUs

IDU-E

Ethernet + 2 E1s/T1s
indoor unit

IDU-C

Ethernet + 4, 8, 16 E1s/T1s indoor unit

RADWIN 2000 Specifications

Architecture	ODU: Outdoor Unit with Integrated or Embedded Antenna or Connectorized Unit for External Antenna IDU: Indoor Unit or PoE device

Outdoor Units (ODUs)

	D+ Series	Alpha-Series	C-Series	A-Series
Max Throughput				
Ethernet	750Mbps	50, 250, 500Mbps @ 5.xGHz 500Mbps @ 3.xGHz	200Mbps	25, 50Mbps, upgradable to 100Mbps
TDM E1 / T1 Trunks	-	-	16	4 8
Radio				
Range	Up to 120km / 75 mile	Up to 40 km / 25 mile	Up to 120km / 75 mile	Up to 120km / 75 mile
Frequency band	4.9-6.0 GHz	4.9-6.0 GHz 3.4-3.8 GHz	2.4-2.5 GHz 3.3-3.8[1] GHz 4.9-6.0 GHz 5.9-6.4[1] GHz	2.3-2.5 GHz 4.9-5.9 GHz 5.7-6.4 GHz
Channel Bandwidth	10/20/40/80 MHz	5.x GHz: 5/10/20/40/80 MHz 3.x GHz: 10/20/40/80 MHz	5/10/20/40 MHz	5/10/20/40 MHz
Maximum Tx Power[2]	25dBm	24dBm @ 5.x GHz 25dBm @ 3.x GHz	25 dBm @ 3.3-3.8 GHz, 4.9-6.4GHz 26 dBm @ 2.4-2.5 GHz	21dBm
Adaptive Modulation & Coding	BPSK to 256QAM		BPSK to 64QAM	
Radio Access Scheme	MIMO 2x2 - OFDM			
Duplex Technology	TDD			
Asymmetric TDD	Configurable		Adaptive	
Dynamic Channel BW Selection	20/40/80MHz or 20/40MHz			
DFS / ACS	Supported			
Diversity	Polarization and Spatial Diversity supported			
Spectrum View	Built-in Spectrum Analyzer			
Intra-site and inter-site TDD Synchronization using GPS	Supported			
Encryption	AES128			
Maximum Information Rate	Supported			
Service Protection			Built in support: 1+1 and Ring topology	
QoS	4 levels supported, Strict priority, TTL		4 levels supported	
Maximum Frame Size	2048 bytes			
Latency	< 3msec			
Management				
Equipment Manager System (EMS)	Application: RADWIN Manager			
Protocol	SNMPv1, SNMPv3, Telnet and HTTP/HTTPS			
NMS Application	RADWIN WINManage			
Web based Management	Supported			
Dimensions and Weight				
Integrated ODU (w)x(h)x(d) Cm	30 x 30 x 10 2.9 kg / 6.4 lbs	32.5 x 32.5 x 6.4 2 kg / 4.4 lbs	30 x 30 x 10 2.9 kg / 6.4 lbs	With 23dBi Antenna: 30x30x10; 2.9kg / 6.4lbs With 17dBi Antenna: 17x21x7; 1.2kg / 2.7 lbs
Connectorized ODU (w)x(h)x(d) Cm	19.5 x 28.0 x 8.0 2.4 kg / 5.3 lbs	18.2 x 18.2 x 6.0 0.5 kg / 1.1 lbs	19.5 x 28.0 x 8.0 2.4 kg / 5.3 lbs	17x21x7; 1.2kg / 2.7 lbs

	D+ Series	Alpha-Series	C-Series	A-Series
Power				
Power Feeding	Via Indoor Unit or PoE device			
Max Power Consumption	<20W	<20W	<20W	< 12W
Environmental				
Operating Temperatures	-35°C to 60°C / -31°F to 140°F; For -55°C / -67°F Consult a local RADWIN Rep			
Humidity	100% condensing, IP67	100% condensing, IP66	100% condensing, IP67	
Shock and Vibration	EN 300 019-2-4 IEC 60068-2 Class4M5			
RADIO regulations	FCC, IC, ETSI, UNI, TH, MII, NCC	5.x GHz: ETSI, WPC, UNI, MII, NCC 3.x GHz: ETSI, UNI	WPC, UNI, MII (FCC @ 2.4Ghz)	WPC, UNI, MII, TH (FCC , ETSI @ 2.4Ghz)

Indoor units (IDUs)

Interfaces							
Ethernet ports	PoE	IDU-H		IDU-C	IDU-C EO	IDU-E	IDU-EO
	1 x 10/100/1000BaseT	WAN	LAN	2 x 10/100BaseT 1 x SFP FE	2 x 10/100/1000BaseT 1 x SFP GbE	2 x 10/100BaseT	
		6 x PoE-10/100/1000BaseT	2 x 10/100/1000BaseT 2 x SFP GbE				
TDM ports				Up to 16		2	
Dimensions and Weight							
Dimensions (w) x(h)x(d) Cm		1U Half 19" width, 22 x 5 x 21		44 x 5 x 21		22 x 4.5 x 18	
Weight		1.5kg / 3.3 lbs		1.2 kg / 2.7 lbs		0.5kg / 1.0 lbs	
Power Feeding	20 to -60 VDC (dual feed in IDU-C); 100-240 VAC, 50/60 Hz; -45 to -55 VDC (dual redundant power feeding for IDU-H)						
Environmental							
Operating Temperatures	0°C to 50°C / 32°F to 122°F						
Humidity	90% non-condensing						

Note 1: Available in C+ product
Note 2: Subject to country regulation

RADWIN is a leading provider of Point-to-Multipoint and Point-to-Point broadband wireless solutions. Incorporating the most advanced technologies such as a Beamforming antenna and an innovative Air Interface, RADWIN's systems deliver optimal performance in the toughest conditions including high interference and obstructed line-of-sight.

Deployed in over 170 countries, RADWIN's solutions power applications including backhaul, broadband access, private network connectivity, video surveillance transmission as well as delivering broadband on the move for trains, vehicles and vessels.

RADWIN

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