



ExtendAir Licensed FCC



Fast Ethernet/TDM Microwave Systems for Business Critical All-Outdoor Applications

ExtendAir is a first-of-its-kind line of entry-level, high performance, point-to-point radio systems for the 11, 18 and 23 GHz FCC Part 101 bands. Designed to deliver guaranteed Ethernet throughput and toll-quality voice in urban and suburban environments, ExtendAir “rc” series radios are rugged, all-outdoor systems delivering 100 Mbps full-duplex Ethernet throughput and optional native 4xT1/E1. ExtendAir is designed to meet the business critical performance, capital and operating requirements of enterprises, government organizations and service providers.

Field-replaceable diplexer. In an industry first for all-outdoor systems, the frequency sub-band is defined by an inexpensive field-replaceable diplexer. As a result, a single ExtendAir radio can be used to spare an entire 11, 18 or 23 GHz band, dramatically reducing the cost of sparing and shortening lead times.

Multi-port flexibility. In another industry first for entry-level all-outdoor systems, ExtendAir includes a 3x10/100BaseT option that provides users the flexibility to deploy back-to-back repeater sites or accept direct input from multiple IP devices such as surveillance cameras without the use of an external switch.

Pay as you grow. The future is hard to predict. With ExtendAir systems, you don’t have to. All capacity enhancements and optional features are remotely upgradeable using a software license key.

The native difference. ExtendAir systems deliver true carrier-class capability, made possible by running Ethernet and optional TDM natively. That means rock-solid TDM performance regardless of IP traffic behavior. It also means that when T1/E1 ports are added, TDM throughput is traded bit-for-bit for Ethernet throughput and vice versa, so there’s never a question about available user throughput for either transport. As a result, ExtendAir allows risk-free network migration for both private and operator networks, including 3G to LTE evolution at the network edge.

Best-in-class data networking. ExtendAir was designed to support complex IT environments, with support for Ethernet rate limiting, VLAN tagging (802.1Q) and QoS (802.1p) with four traffic classes and multiple filters.

Toll-quality voice. ExtendAir radios support native Ethernet and, optionally, native TDM traffic, with very low latency. So whether it’s TDM voice or VoIP, ExtendAir won’t get in the way of a good user experience.

High security. ExtendAir systems allow network managers to support the most stringent security requirements with optional FIPS 197-compliant AES 128-bit and 256-bit encryption for data traffic protection and support for both encrypted SNMP v3 and SSL/SSH to ensure management security.

Primary Specifications		ExtendAir rc11000 / rc11005 rc18000 / rc18005 rc23000 / rc23005	ExtendAir rc11010 rc18010 rc23010
Maximum Capacity	Ethernet (Aggregate)	100 Mbps	
	TDM	–	4xT1/E1
Frequency (GHz)		11 GHz (10.7-11.7 GHz), 18 GHz (17.7-19.7 GHz) , 23 GHz (21.2-23.61 GHz)	

Specifications

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System

Models	rc11000, rc18000, rc23000: 1x10/100BaseT PoE rc11005, rc18005, rc23005: 1x10/100BaseT PoE + 2x10/100BaseT rc11010, rc18010, rc23010: 1x10/100BaseT PoE + 4xT1/E1		
Frequency Bands	10.70–11.70 GHz	17.70–19.70 GHz	21.2–23.61 GHz
FCC Part 101			
TR Spacing (MHz)	490 / 500	1560	1200
Channel Bandwidth (MHz)	5, 10, 30	5, 10, 20, 30	5, 10, 20, 30
Antenna Interface	WR-75	WR-42	WR-42
Output Power (dBm)			
	QPSK	25	23
	16QAM	23	21
	64QAM	21	20
Receiver Threshold (BER=10 ⁻⁶) over temperature (dBm) ¹			
	QPSK		
	5 MHz	-	-90
	10 MHz	-	-87
	20 MHz	-	-84
	30 MHz	-	-82
	16QAM		
	5 MHz	-	-84
	10 MHz	-	-81
	20 MHz	-	-78
	30 MHz	-77	-76
	64QAM		
	5 MHz	-79	-
	10 MHz	-76	-75
	20 MHz	-	-72
	30 MHz	-71	-70
Throughput (Mbps) (Max system layer 1/Max Ethernet + TDM layer 2) ²			
	QPSK		
	5 MHz	-	9 / 7
	10 MHz	-	19 / 15
	20 MHz	-	37 / 30
	30 MHz	-	56 / 45
	16 QAM		
	5 MHz	-	19 / 14
	10 MHz	-	38 / 30
	20 MHz	-	75 / 60
	30 MHz	108/90	108 / 90
	64 QAM		
	5 MHz	28 / 22	-
	10 MHz	57 / 46	57 / 46
	20 MHz	-	108 / 91
	30 MHz	108 / 108	108 / 108
Emissions Designators			
	5 MHz	5M00W7D	5M00W7D
	10 MHz	10M0W7D	10M0W7D
	20 MHz	-	20M0W7D
	30 MHz	30M0W7D	30M0W7D
Maximum RSL	0 dBm no damage		
	QPSK	-25 dBm error-free	
	64QAM	-30 dBm error-free	
Output Power (min power)	0 dBm		
Power Control Step Size	0.5 dB		
Error Floor	10 ⁻¹²		
FEC	Reed Solomon T=8		
TDM latency	<1ms typical		
Ethernet latency	<250 μs typical		
Data Security	NIST FIPS 197-compliant 128-bit AES and 256-bit AES ³ or 96-bit proprietary encryption		
Spectrum Analyzer ⁴	Embedded		

¹ Due to FCC Part 101 spectral efficiency and channel requirements, not all combinations of channel bandwidth and modulations are supported.

² Maximum layer 1 throughput as measured with 64-byte packets and maximum layer 2 Ethernet + TDM throughput as measured with 1536-byte packets. In both cases throughput includes source address, destination address and CRC overhead. Base configurations start at 25 Mbps full-duplex with 50 and 100 Mbps upgrades available.

³ Software license key option.

⁴ Software upgrade required.



Specifications (Cont.)

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Management	In-band management Out-of-band management (x005 models only)		
Security	SSL/SSH and secure, encrypted SNMPv3		
HTTP	Embedded web server GUI (Internet Explorer, Firefox, Safari, Chrome)		
CLI/Telnet	via 10/100BaseT		
SNMP	v1, v2c, and secure v3		
MIB support	MIB I, MIB II, Exalt MIB		
Installation and Management Manual	Embedded in radio, accessible via HTTP GUI		
Compliance	SNMP v1, v2c, v3 FCC Part 101 IC RSS-210; SRSP-305.9		
Physical			
Dimensions (H x W x D)	9.4" x 9.4" x 5.25" 23.9 cm x 23.9 cm x 13.3 cm		
Operating Temperature	-40 to +65 °C; -40 to +149 °F		
Full Spec Temperature	-40 to +60 °C; -40 to +140 °F		
Weight	3.6 kg / 8.2 lbs.		
Environmental	NEMA 4 / IP66		
Altitude	4600m / 15,000 ft.		
Humidity	100% condensing		
Antenna Mount Options⁵	11 GHz	18 GHz	23 GHz
Gain/3dB Beamwidth	1 ft / 0.3 m	-	35.1 / 2.7 degrees
	2 ft / 0.6 m	33.4 dB / 3.4 degrees	38.6 dB / 2 degrees 40.2 / 1.7 degrees
Interfaces			
RF Diplexers⁶	11 GHz TR 490 / 500 MHz; Hi/Lo Band 1: 10.70–10.90 GHz / 11.20–11.40 GHz Band 2: 10.85–11.05 GHz / 11.35–11.55 GHz Band 3: 11.00–11.20 GHz / 11.50–11.70 GHz	18 GHz TR 1560 MHz; Hi/Lo Band 1: 17.70–18.14 GHz / 19.26–19.70 GHz	23 GHz TR 1200 MHz; Hi/Lo Band 1: 21.20–21.62 GHz / 22.40–22.82 GHz Band 2: 21.59–22.01 GHz / 22.79–23.21 GHz Band 3: 21.98–22.40 GHz / 23.18–23.60 GHz
Ethernet	RJ48C/RJ45 Female (x1 or x3) ⁷		
Interface Speed	10/100BaseT (PoE or PoE + ETH1 + ETH2)		
Duplex	Half, Full, Auto-MDIX		
Compliance	802.3		
VLAN	802.1q, transparent, trunk, and management only		
QoS⁴	4 QoS traffic classes; filters on: port, IEEE802.1p, IPv4 TOS or DiffServ, IPv6 traffic class, 802.1Q VLAN ID, SA/DA MAC		
Ethernet Rate Limiting	Configurable per port via software		
Maximum Packet Size	2048 bytes		
T1/E1 (xx010 models only)	T1 (x4)	E1 (x4)	
	RJ48C/RJ45 Female (x2)		
Impedance	100 ohms, balanced	120 ohms, balanced	
Line Code	AMI, B8ZS, selectable per channel	HDB3	
Data Rate	1.544 Mbps	2.048 Mbps	
Compliance	ANSI T1.102-1987; ITU-T; G.823; GR-499-CORE	CEPT-1; G.703; ITU-T-G.703	
Loopback Modes	Remote Internal; Remote External; Local Line		
DC Power	<40W		
AC/PoE Power Adapter			
Input	100–240VAC, 0.5A		
Output	72W, 48VDC		
Warranty	Two years ⁸		

⁵ Remote mount option requires flexible waveguide. Consult Exalt for more information.

⁶ Field replaceable. Refer to warranty terms and conditions.

⁷ xx010 TDM models include a single PoE 10/100BaseT port. xx005 models include one PoE 10/100BaseT port and two additional 10/100BaseT ports.

⁸ Terms and conditions apply. Consult your Exalt sales representative for details.

