



## EX-2.4i Series



### All-Indoor, Carrier-Class 2.4 GHz TDD Radio Systems for Low and Medium Capacity Ethernet and TDM Applications

The EX-2.4i series of all-indoor digital microwave radios is the first family of carrier-class TDD radios available in the 2.4 GHz ISM band. The EX-2.4i line delivers up to 216 Mbps of aggregate user throughput and up to sixteen T1/E1s at distances of up to 30 miles with five 9s availability. Featuring native TDM and native Ethernet transport and full software configurability and up-gradeability, the EX-2.4i series was designed to meet demanding backhaul requirements of enterprise organizations and service providers seeking the accessibility benefits of an all-indoor configuration.

**Carrier-class TDD.** The EX-2.4i series radios combine native TDM and native Ethernet transport with low, fixed latency to deliver guaranteed throughput and service quality. Capacity can be allocated variably between TDM and Ethernet via software, while the selectable throughput symmetry control feature enables radio capacity to efficiently match asymmetric traffic requirements. Optional 1+1 monitored hot standby (MHS) protection provides full hardware redundancy.

**Industry-leading Spectrum Management.** The EX-2.4i radios include selectable channel bandwidth and 1 MHz tuning resolution, yielding up to eight non-overlapping frequency channels and up to 62 center frequencies of operation. These capabilities, combined with selectable modulation and superior system gain, provide unparalleled interference avoidance and transmission resiliency. A built-in spectrum analyzer is even included to accelerate deployment and simplify troubleshooting.

**ExaltSync™ Synchronization.** The ExaltSync technology embedded in the EX-2.4i series radios allows multiple radio systems to be collocated in close proximity without self-interference, minimizing antenna separation and ensuring reuse of scarce spectrum across all collocated systems.

**Security, Management and Data Networking.** The EX-2.4i radios deliver the highest data and management security available with optional 128- and 256-bit AES encryption and secure SNMP v3 management, together with enhanced fault management and diagnostic features. The 802.1Q VLAN option provides built-in network administration and security flexibility.



Primary Specifications		EX-2.4i Lite	EX-2.4i	EX-2.4i-16
Maximum Capacity <sup>1</sup>	TDM	4xT1/E1		16xT1/E1
	Ethernet (Aggregate)	100 Mbps	200 Mbps	
Frequency (GHz)		2.400-2.483		
Maximum Range <sup>2</sup>		> 30 miles at 99.999% throughput availability		

<sup>1</sup> Please refer to the Exalt Throughput and Range Specification document for detailed capacity information.

<sup>2</sup> Distance based upon FCC regulations, average climate and terrain, 6' dish antennas, 3 dB transmission system losses at each end. Longer or shorter distances will apply for alternative antennas, country regulations, transmission system losses, path topologies and radio configurations. See Exalt's link budget and path planning tool to model your scenario.

Specifications	EX-2.4i Series	Specifications	EX-2.4i / EX-2.4i Lite	EX-2.4i-16
<b>System</b>		<b>Physical</b>		
Frequency Band (GHz)	2.400-2.483	Physical Configuration	Single-piece Indoor Unit (IDU)	
Tuning Resolution	1 MHz	Dimensions (H x W x D)	1RU	1.5RU
Output Power (full power)	+27 dBm QPSK +24 dBm 16QAM		1.75 x 17 x 14 in	2.63 x 17 x 14 in
Output Power (min power)	+7 dBm		4.5 x 43.2 x 35.6 cm	6.7 x 43.2 x 35.6 cm
Power Control Step Size	0.5 dB	Operating Temperature	-40 to +65 °C	
Receiver Threshold (BER=10 <sup>-6</sup> )	8 MHz : 16 MHz : 32 MHz : 64 MHz		-40 to +149 °F	
QPSK	-88 : -85 : -82 : -79	Full Spec Temperature	-25 to +60 °C	
16QAM	-80 : -77 : -74 : -71		-13 to +140 °F	
Non-overlapping Channels	8 : 5 : 2 : 1	Weight	9.5 lbs; 4.3 kg	12 lbs; 5.5 kg
Maximum RSL	-25 dBm error-free 0 dBm no damage	Environmental	GR-1089-CORE intra-building	
Throughput Symmetry Control	5 modes 20/80, 80/20, 35/65, 65/35, 50/50	Altitude	15,000 ft; 4.6 km	
Error Floor	10 <sup>-12</sup>	Humidity	95% non-condensing	
Maximum Packet Size	1916 bytes	<b>Interfaces</b>		
Latency (T1/E1)	1ms, typical	RF	N-type(F), impedance 50 ohm (x2)	
Link Security	96-bit proprietary encryption 128-bit and 256-bit AES encryption <sup>1</sup>	TDM T1/E1 Interfaces	RJ48C/RJ45 (F) (x4) : RJ48C/RJ45 (F) (x16)	
VLAN	802.1Q	T1 Impedance	100 ohms, balanced	
Management	HTTP GUI CLI/Telnet SNMP v1, 2c, v3	T1 Line Code	AMI, B8ZS, selectable per channel	
Compliance	FCC 15.247 IC RSS-210	T1 Data Rate	1.544 Mbps	
<b>System Components</b>		T1 Compliance	ANSI T1.102-1987; ITU-T, G.823; GR-499-CORE	
Complete Link	Two terminals with AC adapter & accessory kit	E1 Impedance	120 ohms, balanced	
Single Terminal	One terminal with AC adapter & accessory kit	E1 Line Code	HDB3	
Accessory Kit	DC power connector, rack & grounding hardware (spare)	E1 Data Rate	2.048 Mbps	
AC Adapter	AC adapter (spare)	E1 Compliance	CEPT-1; G.703; ITU-T-G.703	
		Loopback Modes	Remote Internal; Remote External; Local Line	
		Ethernet	RJ45 (F) (x2), auto-MDIX	
		Interface Speed	10/100BaseT	
		Duplex	Half, Full, Auto	
		Compliance	802.3	
		Console (Serial)	9-pin Sub-D (F)	
		Interface Speed	9600 bps	
		Compliance	EIA-574 (RS-232)	
		Alarm	9-pin Sub-D (F)	
			Inputs (2) TTL/Closure	
			Outputs (2) Relay (Form C)	
		ExaltSync Synchronization	RJ45 (F) Internal Sync, 1pps (GPS)	
		DC Power	6-pin barrier strip	
		Input Voltage	±20-60 VDC	
		Consumption	<38.5W	<45W
			48V:<0.8A, 24V:<1.6A	48V: <0.9A, 24V:1.8A
		AC Power Adapter	EIC to NEMA 5-15	
		Input	100-240VAC, 1.5A	
		Output	48VDC, 1.5A, 72W	

<sup>1</sup> Software license key upgrade.

