

11GHz Split-Mount Licensed Wireless Backhaul

Split-mount configuration

Spectrally efficient

IP and TDM applications

Carrier-class

Strong link security

Single IDU spare serves both ends

Resilient transmission

- 4 to 16 x T1/E1 + 10/100BaseT Ethernet
- AES 256 and 128 encryption (option)
- SNMPv3
- 1.5 RU design
- Monitored Hot Standby Protection
- ±20-60 VDC power supply
- 2-year standard warranty**

Telecommunications Carriers

- Add Ethernet connectivity
- Migrate TDM to IP services
- Provide management capability and security with SNMPv3 and AES encryption
- Combine with unlicensed backhaul
- Carry voice and data on dedicated spectrum
- Simplified sparing

Education, Medical & Enterprise

- Install connections instantly
- Interconnect PBX trunk lines
- Eliminate leased line costs
- Provide management capability and security with SNMPv3 and AES encryption
- Carry voice and data on dedicated spectrum

Government Agencies

- Create secure inter-building networks
- Backhaul video monitoring systems
- Secure public safety networks
- Combine with unlicensed or 4.9GHz
- Interconnect PBX trunk lines
- Carry voice and data on dedicated spectrum

Industrial

- Connect oil drilling platforms, power stations and utility centers
- Carry AMR/AMI, SCADA, relay control, and IP data on dedicated spectrum
- Deploy voice/data substation connections
- Backhaul high-capacity video monitoring systems along with telemetry data



The EX-11s-16 split-mount microwave radios from Exalt Communications are carrier-class, software configurable systems. The highly flexible split-mount EX-11s-16 is available in convenient 1.5RU IDU/ODU configurations for the FCC 11GHz band, featuring native TDM and native IP transport with over 200Mbps aggregate throughput and sub-500µs latency. The split-mount design provides maximum flexibility and simplified sparing with plug-and-play IDU/ODU auto-configuration.

With software upgradeability and configuration control for channel bandwidth, modulation, and TDM/IP capacity, the EX-11s-16 split-mount radio ends the need for field replaceable plug-ins and eliminates downtime to upgrade capacity or migrate TDM traffic to emerging IP-based network services.



The EX-11s-16 series 16-100F IDU provides software expandability from 4 to 16x T1/E1 and a smooth upgrade path to higher capacity Ethernet services. TDM capacity may be conveniently expanded in groups of four ports via firmware option. And, only Exalt delivers market-leading security with AES encryption and secure SNMPv3 management. Configurable in standalone 1+0 or monitored hot-standby 1+1 protection mode, the EX-s series also has enhanced fault-management and diagnostic features.

System

Frequency Band	10700-11700 MHz	
Output Power (at full power)	+20dBm Mode 2 (16QAM) +17dBm Mode 3 (64QAM)	
Power Control Step Size	0.5dB	
Maximum RSL (Mode 1)	up to -20dBm error-free 0 dBm no damage	
Receiver Threshold (guaranteed over temperature @BER=10 ⁻⁶)		
FCC (IDU 16-100F)	<u>Mode2</u>	<u>Mode3</u>
5 MHz channel	-	-77dBm
10MHz channel	-	-74dBm
20MHz channel	-	-70dBm
30MHz channel	-75dBm	-68dBm
User Capacity (Aggregate ¹ /Full Duplex ²)		
FCC (IDU 16-100F)	<u>Mode2</u>	<u>Mode3</u>
5MHz channel	-	46/23 Mbps
10MHz channel	-	92/46 Mbps
20MHz channel	-	188/94 Mbps
30MHz channel	188/94 Mbps	284/142 Mbps
Max. Supported T1/E1 ports		
FCC (IDU 16-100F)	<u>Mode2</u>	<u>Mode3</u>
5 MHz channel	-	8/8
10MHz channel	-	16/16
20MHz channel	-	16/16
30MHz channel	16/16	16/16
Error Floor	10 ⁻¹²	
Maximum packet size	1916 bytes	
Latency (T1/E1)	<500µs typical	
Link Security	96-bit proprietary 128 and 256 AES encryption ²	
Management	HTTP GUI, CLI/Telnet SNMPv1, v2c, and v3	
Compliance	RF: FCC Part 101; ETSI EN302217-2-2 EMI: FCC Part 15, ETSI EN301489	

Physical

Physical Configuration	Split-mount Indoor Unit (IDU) and Outdoor Unit (ODU)	
Dimensions (H x W x D)	IDU: 2.63 x 17 x 14 inches (1.5RU) 6.7 x 43.2 x 35.6 cm (1.5RU) ODU: Diameter 10.5in/26.7cm Depth 3.5in/8.9cm	
Operating Temperature	-40 to +65 degrees C -40 to +149 degrees F	
Full Spec Temperature	-25 to +60 degrees C -13 to +140 degrees F	
Weight	IDU: 12 pounds; 5.5 kg ODU : <10 pounds; 4.6 kg	
Environmental	IDU: GR-1089-CORE intra-building ODU: NEMA 4/IP56, EN 301 126-1	
Altitude	15,000 feet; 4.6 km	
Humidity	IDU: 95% non-condensing ODU: 100% condensing	
Safety	IEC 60950-1, EN 60950-1	

¹ The figure listed is the actual aggregate user throughput, maximum, as measured at layer 2. T1 circuits may be enabled one at a time, as needed, and subtract 3.1Mbps (1.544Mbps full-duplex). See your Exalt representative for details.

² Bidirectional capacity or half of the aggregate capacity of the system. Base model configuration is 45Mbps full duplex + 0xT1/E1. Available upgrades are 4, 8, 12, or 16xT1/E1.

Interfaces

IF	IDU/ODU: N-type (F); 50 ohms
RF	ODU: WR-42
T1/E1 (x16) ³	RJ48C/RJ45 (F)
T1 Impedance	100 ohms, balanced
T1 Line Codes	AMI, B8ZS, selectable per channel
T1 Clocking Speed	1.544Mbps
T1 Compliance	ANSI T1.102-1987; GR-499-CORE
E1 Impedance	120 ohms, balanced
E1 Line Codes	HDB3
E1 Clocking Speed	2.048Mbps
E1 Compliance	CEPT-1; G.823, ITU-T-G703
Loopback Modes	Remote Internal/External, Local line
Ethernet (x2)	RJ45 (F), 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)
DC Power	6-pin barrier strip
Input Voltage	±20-60VDC
Consumption	<70W (48V : <1.5A, 24V: <3.0A)
AC Power Adapter	EIC-to-NEMA 5-15
Input	100-240VAC, 1.5A
Output	48VDC, 2A, 100W

System Components

Complete link ⁴	Two terminals (IDU+ODU) each with AC adapter & accessory kit
Single terminal	One terminal (IDU+ODU) with AC adapter & accessory kit
Accessory kit	DC power connector, rack and grounding hardware (spare)
AC adapter	AC adapter (spare)
Monitored Hot Standby Kit	Optional accessory kit

³ Capacity may be increased in groups of 4xT1/E1 from 4 to 16 via separately purchased software option.

⁴ Two complete links (4 terminals: 4xIDU+4xODU) are required for monitored hot standby (MHS) protection along with MHS kit and MHS firmware version.