

AirMux-200



Broadband Wireless Multiplexer



FEATURES

- Cost effective point-to-point broadband wireless multiplexer
- Operates at 5.x GHz and 2.4 GHz unlicensed bands
- Air data rate of up to 48 Mbps
- Transmission range of up to 80 km (50 miles)
- High reliability and availability based on robust air interface
- Integrated solution for E1/T1 and Ethernet interfaces
- Redundant power supply and up to 4 E1/T1 interfaces available in extended IDU version
- Compliant with FCC, CAN/CSA, and Chinese standards

DESCRIPTION

- AirMux-200 is a carrier-class, 48 Mbps capacity, cost effective point-to-point broadband wireless transmission system. It combines legacy TDM and Ethernet services for transmission over 5.x GHz and 2.4 GHz unlicensed bands. It is suitable for deployment in FCC regulated countries.
- Short time to service period:
 - Wireless connectivity instead of private line leasing from service providers
 - License-exempt spectrum removes regulatory delays
 - Compact integrated system, easy to install and operate.
- AirMux-200 provides high performance and reliability. The interface ensures low BER, as well as low latency, and full compliance with E1/T1 interface jitter and wander requirements.

- Transmission range of up to 80 km (50 miles) with an external antenna.
- The AirMux multiplexers consist of an outdoor unit (ODU) and an indoor unit (IDU or IDU-E).
- The outdoor unit is suitable for mast or wall installation. Mounting brackets are supplied with the unit.

APPLICATIONS

- Broadband Access
AirMux-200 provides broadband access services, such broadband Ethernet and leased lines, to Small and Medium Enterprises (SME).
- Cellular Backhauling
AirMux-200 connects between cellular base stations and cellular base station controllers. This solution meets the requirements of cellular backhauling applications by providing up to four E1/T1 interfaces and Ethernet traffic for maintenance and control.



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- **Hot-Spot Backhauling**
AirMux-200 provides a robust and more cost-effective alternative to the last mile connection between the WLAN access point and the data network, compared with the often used expensive E1/T1 leased lines.
- **Wireless ISP Backhaul**
Wireless Internet Service Providers (WISP) use backhaul to connect their Point of Present (POP) to their network operation center. With AirMux-200, WISPs have a higher capacity with a range of up to 80 km (50 miles), bundled connectivity in a cost-effective package.
- **Remote Sites Connectivity**
AirMux-200 is offered to enterprises with multiple sites that require a cost-effective and transparent connection of LAN and PBX systems across their various campuses.

SPECIFICATIONS

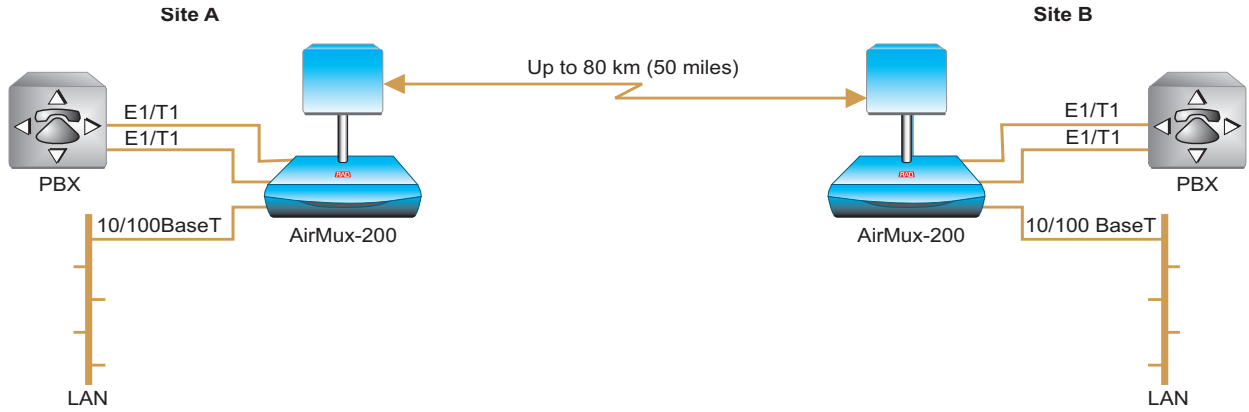
- RADIO**
- **Frequency Bands**
5.725–5.850 GHz
5.470–5.725 GHz
5.250–5.350 GHz
4.940–4.990 GHz
2.400–2.4835 GHz
 - **Data Rate**
Up to 48 Mbps, user-configurable
 - **Channel Bandwidth**
20 MHz
 - **Duplex Technique**
TDD
 - **Modulation**
OFDM - BPSK, QPSK, 16QAM, 64QAM
 - **Transmit Power**
FCC: 18 dBm (max)
 - **EIRP**
19 dBm/MHz
 - **RF Dynamic range**
More than 50 dB

- LAN INTERFACE**
- **Number of ports**
IDU: 1 or 2
IDU-E: 4
 - **Type**
10/100BaseT, autonegotiation
 - **Framing/Coding**
IEEE 802.3/U
 - **Bridging**
Self-learning, up to 2048 MAC addresses
 - **Traffic Handling**
MAC layer bridging, self-learning
 - **Latency**
3 msec (typical)
 - **Line Impedance**
100Ω
 - **VLAN Support**
Transparent
 - **Connector**
RJ-45

Table 1. AirMux-200 Antenna Options

	Type	Gain [dBi]	Max Range		Beam [degrees]	Dimensions		Weight		Connector	Lightning Protection	
			[km]	[miles]		[mm]	[in]	[kg]	[lb]			
5.x GHz												
	Integrated	Flat panel	22	40	25	9.0	305×305×58	12×12×2.3	0.5	1.1	NR	Yes
	External	Flat panel	28	80	50	4.5	600×600×51	23.6×23.6×2	5.0	11.0	N-type	No
5.725–5.850												
	External	Parabolic	32.5	80	50	4.5	Dia 900	35.4	10	22	N-type	No
4.940–4.990												
	Integrated	Flat panel	21	40	25	9.0	305×305×58	12×12×2.3	0.5	1.1	N-type	Yes
2.400–2.4835 GHz version												
	Integrated	Flat panel	17	40	25	20	305×305×58	12×12×2.3	0.5	1.1	NR	Yes
	External	Flat panel	24	80	50	8	600×600×51	23.6×23.6×2	5.0	11.0	N-type	No

APPLICATION



E1/T1 INTERFACE

- **Number of Ports**
1, 2 or 4
- **Framing**
Unframed
- **Timing**
Plesynchronous (independent Tx and Rx timing)
- **Line Code**
E1: HDB3
T1: B8ZS, AMI
- **Latency**
8 msec
- **Line Impedance**
E1: 120Ω, balanced
T1: 100Ω, balanced
- **Connector**
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- **Jitter and Wander Compliance**
As per G.823, G.824 requirements

ANTENNA

- **Characteristics**
See Table 1

MANAGEMENT

- **Protocol**
SNMP-based
- **Network Management**
SNMPc-based
- **Management Interface**
10/100BaseT
- **Connector**
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- **Upgrade Capabilities**
Local and over-the-air software download

REGULATORY COMPLIANCE

- **Radio**
FCC 47CFR Part 15, 15.247, and subpart C
RSS-210
China MIW[2002]277
- **Safety**
TUV according to UL 60950, EN 60950-1, EN 60529
- **EMC**
FCC 47CFR Parts 15, 15.247, and subpart B
CAN/CSA-CEI/IEC CISPR 22-02
- **Environmental**
IEC 60721-3-4 Class 4M5
IP 67

GENERAL

- **Diagnostics**
Local and remote loopbacks
- **IDU-to-ODU Connection**
Outdoor Cat.5 cable, 100m (328 ft) maximum length
- **Power**
100–240 VAC
-48 VDC available for IDU-E
- **Power Consumption**
ODU with IDU 10W max
ODU with IDU-E 14W max
- **Indicators**
PWR (green) – Power status
IDU (green) – IDU status
ODU (green/red) – ODU-to-IDU link status
AIR I/F (green/red) – Air Interface status
SERVICE (green/red) – E1/T1 signal status

Table 2. Radio Regulatory Compliance and Maximum Transmit Power

Frequency [GHz]	FCC and CAN/CSA		ETSI	
	Compliance	Max. Tx Power [dBm]	Compliance	Max. Tx Power [dBm]
5.725 – 5.850	47CFR Part 15 Subpart C, RSS-210	17	NA	NA
5.470 – 5.725	47CFR Part 15 Subpart E,	17	EN 300 216 V1.2.1, EN 301 893 V1.2.2	7
5.250 – 5.350	47CFR Part 15 Subpart E, RSS-210	8	NA	NA
4.940 – 4.990	47CFR Part 15 Subpart B	10	NA	NA
2.400 – 2.4835	47CFR Part 15 Subpart C, RSS-210	11	EN 300 328	-6

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• Physical

ODU (with integrated antenna):
Height: 305 mm / 12.0 in
Width: 305 mm / 12.0 in
Depth: 58 mm / 2.3 in
Weight 1.5 kg / 3.3 lb

IDU:
Height: 44 mm / 1.7 in
Width: 237 mm / 9.3 in
Depth: 165 mm / 6.5 in
Weight 0.5 kg / 1.1 lb

IDU-E:
Height: 44 mm / 1.7 in
Width: 430 mm / 17.0 in
Depth: 290 mm / 11.4 in
Weight 1.5 kg / 3.3 lb

• Environment

Outdoor unit and external antenna:
Enclosure: all-weather case
Temperature: -35–60°C/-31–140°F

Indoor units:
Temperature: -5–45°C/23–113°F
Humidity: Up to 90%,
non-condensing

ORDERING

Airmux-200/IDU/~~/UTP/*

Indoor unit

Airmux-200/IDUE/~~/UTP/*

Extended indoor unit. Optional redundant power supply.

Airmux-200/ODU/#/^

Outdoor unit

Airmux-200/\$/#/~~/UTP*/^/@/KIT/!

Complete system comprising two indoor units, two outdoor units and two cables at specified length

~ Specify power supply type:

Note: The Airmux-200 IDU-E may be ordered with two of the same type of power supply, the second is redundant.

115 for 115 VAC power supply

240 for 240 VAC power supply
IDU only

48 for -48 VDC power supply

* Specify TDM interface type:

IDU only:

E1 for E1 interface

T1 for T1 interface

2E1 for two E1 interfaces

2T1 for two T1 interfaces

IDU-E only:

4E1 for four E1 interfaces

4T1 for four T1 interfaces

Specify the frequency band:

f58 for 5.725–5.850 GHz

f52 for 5.250–5.350 GHz

f49F for 4.940–4.990 GHz, FCC

f54F for 5.470–5.725 GHz, FCC

f54E for 5.470–5.725 GHz, ETSI

(No DFS/TPC)

f24E for 2.400–2.4835 GHz, ETSI

Note: f24E available with external antenna only.

f24F for 2.400–2.4835 GHz, FCC

^ Specify **EXT** for outdoor unit with dedicated connector for external antenna connection

Note: If EXT is not specified, AirMux-200/ODU is supplied with an integrated antenna.

\$ Specify the IDU type:
E for Extended IDU (IDU-E)

@ Specify cable length:
25 for 25m (82 ft) cable
50 for 50m (164 ft) cable
75 for 75m (246 ft) cable
100 for 100m (328 ft) cable
Note: Default is without cable

! Country specific:
CN for China

CBL-Airmux-UTP/@

Assembled cable for permanent connection between indoor and outdoor units

Airmux-ANT/\$

External flat panel antenna

\$ Specify external antenna type:
24 dB for 24 dBi external antenna
28 dB for 28 dBi external antenna
32 dB for 24 dBi external antenna

RM-33

Hardware kit for mounting one indoor unit in a 19-inch rack

data communications

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