

AirMux-200

Broadband Wireless Multiplexer



FEATURES

- Cost effective point-to-point broadband wireless multiplexer
- Operates at 5.x GHz, 4.9 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 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, 4.9 GHz, and 2.4 GHz unlicensed bands, and 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 controllers. This solution meets the requirements of cellular backhauling applications by providing 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**
5.8 GHz (5.725–5.850 GHz)
5.4 GHz (5.470–5.725 GHz)
5.3 GHz (5.250–5.350 GHz)
4.9 GHz (4.940–4.990 GHz)
2.4 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

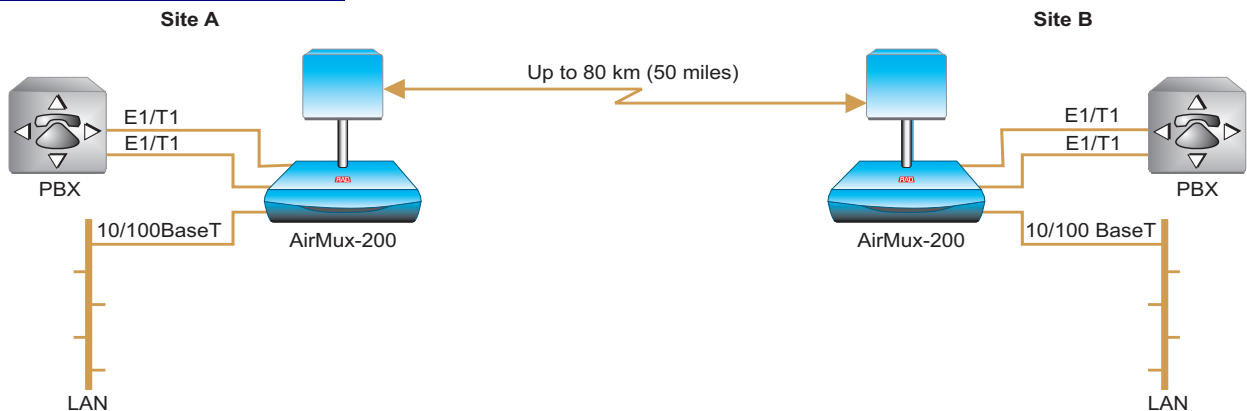
LAN INTERFACE

- **Number of ports**
IDU: 1
IDU-E: 2
- **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**
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Table 1. AirMux-200 Antenna Options

Type	Gain [dBi]	Max Range [km] [miles]	Beam [degrees]	Dimensions [mm] [in]	Weight [kg] [lb]	Connector	Lightning Protection
5.8, 5.4, 5.3 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
5.8 GHz only							
External Parabolic	32.5	80 50	4.5	Dia 900 35.4	10 22	N-type	No
4.9 GHz							
External Flat panel	21	40 25	9.0	305×305×58 12×12×2.3	0.5 1.1	N-type	Yes
2.4 GHz							
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**
IDU: 1 or 2
IDU-E: 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
Two options available for IDU-E
 - Single fixed power supply
 - Two modular power supplies
- **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/~ /~/2UTP/*

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

Airmux-200E/# / ^ / ~ / ~ / 2UTP * / @ / KIT !

Complete system comprising two extended 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 modular removable power supplies. The single power supply option is not removable.

115 for 115 VAC power supply

240 for 240 VAC power supply

IDU-E only:

48 for -48 VDC power supply

Specify the frequency band:

f58 for 5.725–5.850 GHz

f53F 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 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 **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 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

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External antenna supplied with 1m cable.

\$ Specify external antenna type:

24/2.4/db/grid for 24 dBi, 2.4 GHz
grid antenna

32/5.8/db/dish for 32.5 dBi, 5.8 GHz
dish antenna

28/5.8/db/fp for 28 dBi, 5.8 GHz
flat panel antenna

21/4.9/db/fp for 21 dBi, 4.9 GHz,
flat panel antenna

RM-33

Hardware kit for mounting one IDU in a 19-inch rack

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