

# 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-E version

### 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) is available 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, 16 QAM, 64 QAM
- **Transmit Power**  
See Table 1
- **RF Dynamic range**  
More than 50 dB

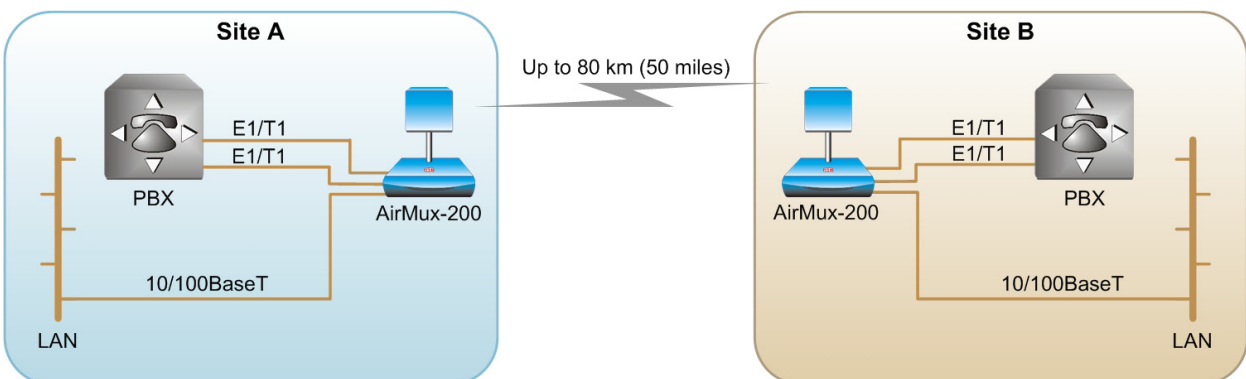
### LAN INTERFACE

- **Number of ports**  
IDU: 1  
IDU-E: 2
- **Type**  
10/100BaseT, autonegotiation
- **Framing/Coding**  
IEEE 802.3u
- **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. Radio Regulatory Compliance and Maximum Transmit Power

Frequency [GHz]	USA and Canada		Europe (ETSI)		China	
	Regulation	Max. Tx Power [dBm]	Regulation	Max. Tx Power [dBm]	Regulation	Max. Tx Power [dBm]
5.725 – 5.850	47CFR Part 15 Subpart C RSS-210	17	N/A	N/A	C-MII	10
5.470 – 5.725	47CFR Part 15 Subpart E	17	EN 300 216 V1.2.1, EN 301 893 V1.2.2	7	N/A	N/A
5.250 – 5.350	47CFR Part 15 Subpart E RSS-210	8	N/A	N/A	N/A	N/A
4.940 – 4.990	47CFR Part 15 Subpart B	10	N/A	N/A	N/A	N/A
2.400 – 2.4835	47CFR Part 15 Subpart C RSS-210	11	EN 300 328	-6	N/A	N/A

## APPLICATION



# AirMux-200

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### 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

### 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

### GENERAL

- **Diagnostics**  
Local and remote loopbacks
- **IDU-to-ODU Connection**  
Outdoor Cat.5e cable,  
100m (328 ft) maximum length
- **Power**  
DC: -48, 24 VDC  
AC: 100–240 VAC  
Two AC power supply options are 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

### Environment

Outdoor unit and external antenna:  
Enclosure: all-weather case, IP67  
Temperature: -35–60°C/-31–140°F

Indoor units:  
Temperature: 0–50°C/32–122°F  
Humidity: Up to 90%, non-condensing

### 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

### ANTENNA

- **Characteristics**  
See Table 2

Table 2. AirMux-200 Antenna Options

	Type	Gain [dBi]	Max Range		Beam [degrees]	Dimensions		Weight		Connector	Lightning Protection	
			[km]	[miles]		[mm]	[in]	[kg]	[lb]			
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	24	15	9.0	305×305×58	12×12×2.3	0.5	1.1	N-type	Yes
	External	Flat panel	27	80	50	5	600×600×51	23.6×23.6×2	5.0	11.0	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



# AirMux-200

## Broadband Wireless Multiplexer

### ORDERING

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

Indoor unit

#### Airmux-200/IDUE/~~/~2UTP/\*

Extended indoor unit with optional redundant power supply

#### Airmux-200/ODU/#/~^

Outdoor unit

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

A system comprising of two indoor units and two outdoor units

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

A system comprising of two extended indoor units and two outdoor units

**Note:** Kits are supplied without the cable.

~ Specify power supply type:

**Notes:** The AirMux-200 IDU-E may be ordered with two AC modular removable power supplies.

The power supply of the single power supply option is not removable.

For IDU operation via -48 VDC, order either AC version.

**115** for 115 VAC power supply

**240** for 240 VAC power supply

IDU-E only:

**48** for -48 VDC power supply

**24** for -24 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

**f54E** for 5.470–5.725 GHz, ETSI

**f24E** for 2.400–2.4835 GHz, ETSI

**f24F** for 2.400–2.4835 GHz, FCC

**Note:** f24E and f49F are available with external antenna only.

\* Specify TDM interface type:

IDU:

**E1** for E1 interface

**T1** for T1 interface

**2E1** for two E1 interfaces

**2T1** for two T1 interfaces

IDU-E:

**4E1** for four E1 interfaces

**4T1** for four T1 interfaces

! Country specific:

**CN** for China

^ 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.

### OPTIONAL ACCESSORIES

#### • CBL-Airmux-UTP/@

Assembled cable for permanent connection between indoor and outdoor units

@ 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

#### • Airmux-ANT/\$

External antenna is supplied with 1m (3.3 ft) 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

**27/4.9/db/fp** for 27 dBi, 4.9 GHz flat panel antenna

#### • RM-33

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

**RAD**

data communications

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