**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.
AirMux-200

Broadband Wireless Multiplexer

- 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**
  RJ-45

### APPLICATION

#### Table 1. AirMux-200 Antenna Options

<table>
<thead>
<tr>
<th>Type</th>
<th>Gain [dBi]</th>
<th>Max Range [km] [miles]</th>
<th>Beam [degrees]</th>
<th>Dimensions [mm] [in]</th>
<th>Weight [kg] [lb]</th>
<th>Connector</th>
<th>Lightning Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.8, 5.4, 5.3 GHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated</td>
<td>Flat panel</td>
<td>22</td>
<td>40 25</td>
<td>9.0</td>
<td>305×305×58</td>
<td>12×12×2.3</td>
<td>0.5 1.1</td>
</tr>
<tr>
<td>External</td>
<td>Flat panel</td>
<td>28</td>
<td>80 50</td>
<td>4.5</td>
<td>600×600×51</td>
<td>23.6×23.6×2</td>
<td>5.0 11.0</td>
</tr>
<tr>
<td>5.8 GHz only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External</td>
<td>Parabolic</td>
<td>32.5</td>
<td>80 50</td>
<td>4.5</td>
<td>Dia 900</td>
<td>35.4</td>
<td>10 22</td>
</tr>
<tr>
<td>4.9 GHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External</td>
<td>Flat panel</td>
<td>21</td>
<td>40 25</td>
<td>9.0</td>
<td>305×305×58</td>
<td>12×12×2.3</td>
<td>0.5 1.1</td>
</tr>
<tr>
<td>2.4 GHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated</td>
<td>Flat panel</td>
<td>17</td>
<td>40 25</td>
<td>20</td>
<td>305×305×58</td>
<td>12×12×2.3</td>
<td>0.5 1.1</td>
</tr>
<tr>
<td>External</td>
<td>Flat panel</td>
<td>24</td>
<td>80 50</td>
<td>8</td>
<td>600×600×51</td>
<td>23.6×23.6×2</td>
<td>5.0 11.0</td>
</tr>
</tbody>
</table>

#### Site A

- PBX
- 10/100BaseT
- AirMux-200

#### Site B

- PBX
- 10/100BaseT
- AirMux-200

Up to 80 km (50 miles)
AirMux-200

Broadband Wireless Multiplexer

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**
  - RJ-45
- **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**
  - RJ-45
- **Upgrade Capabilities**
  - Local and over-the-air software download

REGULATORY COMPLIANCE
- **Radio**
  - FCC 47CFR Part 15, 15.247, and subpart C
  - RSS-210
  - China MIIT[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**

<table>
<thead>
<tr>
<th>Frequency [GHz]</th>
<th>FCC and CAN/CSA</th>
<th>ETSI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Compliance</td>
<td>Max. Tx Power [dBm]</td>
</tr>
<tr>
<td>5.470 – 5.725</td>
<td>47CFR Part 15 Subpart E, RSS-210</td>
<td>17</td>
</tr>
<tr>
<td>5.250 – 5.350</td>
<td>47CFR Part 15 Subpart E, RSS-210</td>
<td>8</td>
</tr>
<tr>
<td>2.400 – 2.4835</td>
<td>47CFR Part 15 Subpart C, RSS-210</td>
<td>11</td>
</tr>
</tbody>
</table>
## AirMux-200

### Broadband Wireless Multiplexer

#### 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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Airmux-200</strong></td>
<td>Indoor unit</td>
</tr>
<tr>
<td><strong>Airmux-200-IDU/~/UTP/</strong>*</td>
<td>Indoor unit</td>
</tr>
<tr>
<td><strong>Airmux-200-IDUE/<del>/</del>/2UTP/</strong>*</td>
<td>Extended indoor unit. Optional redundant power supply.</td>
</tr>
<tr>
<td><strong>Airmux-200-ODU/#/^</strong></td>
<td>Outdoor unit</td>
</tr>
<tr>
<td><strong>Airmux-200/#/^/~/UTP/*/@/KIT/!</strong></td>
<td>Complete system comprising two indoor units, two outdoor units and two cables at specified length</td>
</tr>
</tbody>
</table>

#### 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
- **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
- 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

#### Additional Options:
- **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
  - **!** Country specific:
    - **CN** for China

**CBL-Airmux-UTP/@**
- Assembled cable for permanent connection between indoor and outdoor units

**Airmux-ANT/$**
- 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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