

# Airmux-400H

750 Mbps Point-to-Point Wireless  
Connectivity in Sub-6 GHz Bands



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# Airmux-400H Highlights

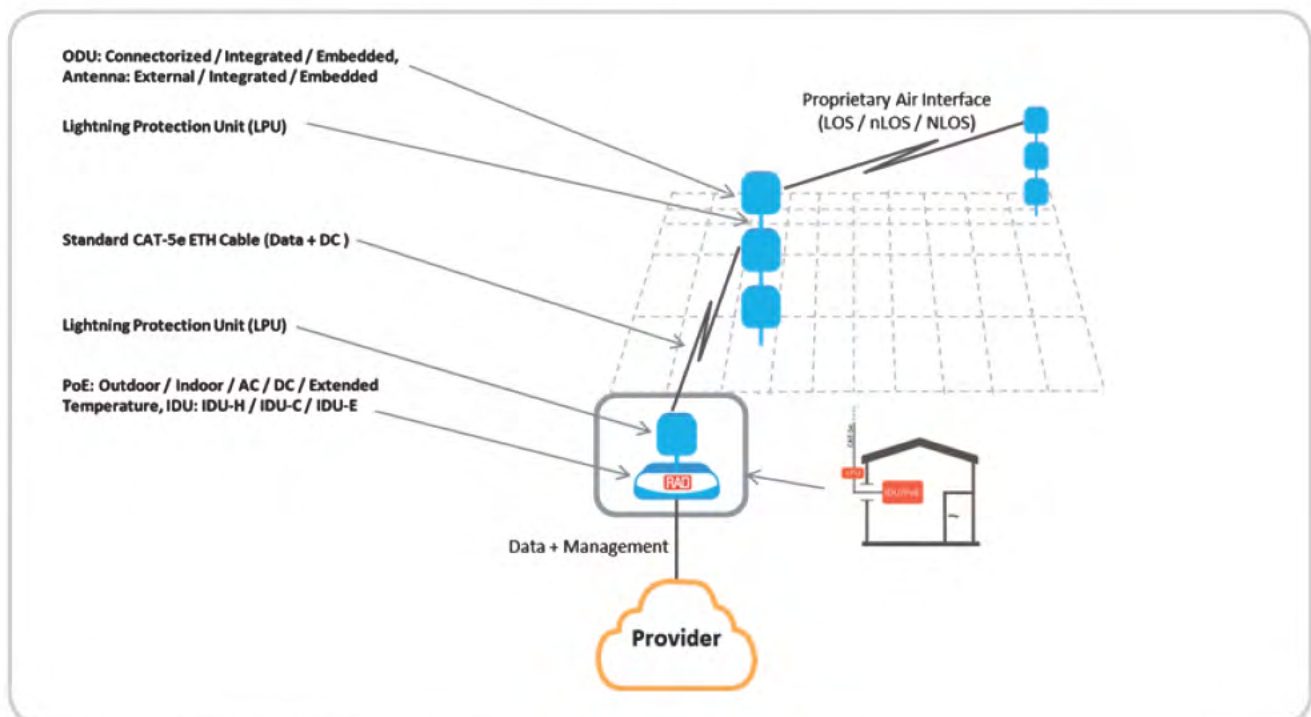
Airmux-400H is a carrier-class, cost-effective multiple point-to-point broadband wireless transmission device. It operates in 5.1 to 6.0 GHz bands complying with FCC and ETSI regulations. Airmux-400H offers high throughput of 750 Mbps, longer range and robustness at a competitive price for the global markets of cellular backhaul, WiMAX and ISP backhaul, broadband access, as well as large private and government networks.

- Up to 750 Mbps aggregated Ethernet throughput per link
- Dynamic channel bandwidth selection (D-CBS) yields highest possible throughput
- OFDM, MIMO 2X2/diversity and QAM 256 technologies
- Configurable multiband radio
- Backup and restore ODU configuration
- Hub-site synchronization (HSS) over Ethernet
- SNMPv3 for management communications
- Complies with FCC/ETSI



## Airmux Beamforming Highlights

Delivering up to 750 Mbps Ethernet throughput, the Airmux-400H series is ideal for IP backhaul applications. It provides high spectrum efficiency by employing a QAM 256 modulation scheme, and utilizes enhanced interference mitigation techniques and D-CBS to deliver high performance even in a highly congested spectrum. D-CBS is a unique feature that selects the widest channel bandwidth (up to 80 MHz) with minimal interference to maximize link throughput. Airmux-400H radios deliver 350 Mbps in 40 MHz and support 20-MHz and 10-MHz channel bandwidth. They are based on extensive experience in designing systems that operate commercially in nLOS/NLOS environments, successfully overcoming severe multipath conditions.



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# Airmux-400 Specifications

## Configuration

Architecture	ODU: Outdoor Unit with Integrated Antenna, Embedded Antenna or Connectorized Unit for External Antenna IDU: Indoor Unit or PoE Device			
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Outdoor Units (ODUs)				
	400H-Series	400-Series <sup>1</sup>	400L-Series	400LC-Series

## Max Throughput

Ethernet	750 Mbps	200 Mbps	50 Mbps upgradable to 200 Mbps	10 Mbps, 25 Mbps, 50 Mbps, upgradable to 100 Mbps
TDM E1 / T1 Trunks		16	8	2 4 8

## Radio

Range	Up to 40 km/25 miles	Up to 120 km/75 miles		
	5.145-6.090 GHz	2.297-2.482 GHz 3.300-3.800/3.65 GHz 4.390-5.010 GHz 4.900-6.060 GHz 5.890-6.410 GHz	2.297-2.482 GHz 4.900-6.060 GHz 5.890-6.410 GHz	2.297-2.482 GHz 4.890-5.960 GHz
Channel Bandwidth	10/20/40/80 MHz	5/10/20/40 MHz	5/10/20/40 MHz	5/10/20 MHz
Maximum Tx Power	25 dBm @ 3.3-3.8 GHz, 4.9-6.4 GHz, 26 dBm @ 2.3-2.5 GHz			
Adaptive Modulation & Coding	10 levels: BPSK to 256QAM	8 levels: BPSK to 64QAM		
Radio Access Scheme	MIMO 2x2 - OFDM			
Duplex Technology	TDD			
Asymmetric TDD	Configurable	Adaptive		
Dynamic Channel BW Selection	20/40/80 MHz or 20/40 MHz			
DFS/ACS	Supported			
Diversity	Polarization and spatial diversity supported			
Spectrum View	Built-in spectrum analyzer			
TDD Synchronization	Intra-site and inter-site using GPS			
Encryption, US Security	AES128, FIPS197			
Maximum Information Rate	Supported			
Service Protection		Built in support: 1+1 and ring topology		
QoS	4 levels supported, Strict Priority, TTL	4 levels supported		
Maximum Frame Size	2048 bytes			
Latency	< 3 msec			

## Management

Link Management	Application Airmux manager
Protocol	SNMPv1, SNMPv3, Telnet and HTTP
NMS Application	RADview
Web- Based Management	Web access via browser

## Dimensions and Weight

Integrated ODU (w)x(h)x(d) cm	30x30x10; 2.9 kg/6.4 lbs	With 23 dbi antenna: 30x30x10; 2.9 kg/6.4 lbs With 17dbi Antenna: 17x21x7; 1.2 kg/2.65 lbs
Connectorized ODU (w)x(h)x(d)	19.5x28.0x8.0; 2.4 kg/5.29 lbs	17x21x7; 1.2 kg/2.65 lbs

## Power

Power Feeding	Via Indoor Unit or PoE device	
Power Consumption	25W (ODU + POE)	22W (ODU + IDU); 12W (ODU + PoE device)

## Environmental

Operating Temperatures	-35°C to 60°C/-31°F to 140°F; for -55°C/-67°F advise local RAD Rep
Humidity	100% condensing, IP67 (totally protected against dust and immersion up to 1m)
Shock and Vibration	EN 300 019-2-4 IEC, 60068-2 Class4M5

<sup>1</sup> 250 Mbps capacity is available in 3.300-3.800/3.65 GHz & 4.900-5.150 GHz using Airmux-400P. For data sheet please contact RAD local Rep.

Radio Regulations							
FCC	47CFR Part 15 Subpart C 47CFR Part 15 Subpart E 47CFR Part 90 Subpart Y 47CFR Part 90 Subpart Z UCBP						
IC (Canada)	RSS-210 RSS-111 RSS 192 RSS 197 UCBP						
ETSI	EN 300 328; EN 301 893; EN 302 502; EN 302 326-2						
WPC (India)	GSR-38						
MII (China)	5.8 GHz Band Regulation						
Safety							
FCC/IC (cTUVus)	UL 60950-1, UL 60950-22, CAN/CSA C22.2 60950-1, CAN/CSA C22.2 60950-22						
ETSI	EN/IEC 60950-1, EN/IEC 60950-22						
EMC							
FCC	47CFR Part 15 Subpart B, Class B						
ETSI	EN 301 489-1, EN 301 489-4						
CAN/CSA	CISPR 22 Class B						
AS/NZS	CISPR 22 Class B						
Ethernet Interface							
Ports	PoE	IDU-H		IDU-C	IDU-C EO	IDU-E	IDU-EO
		WAN	LAN				
	1x10/100/1000BaseT	6xPoE-10/100/1000BaseT	2x10/100/1000BaseT 2xSFP GbE	2x10/100BaseT 1xSFP FE	2x10/100/1000BaseT 1xSFP GbE	2x10/100BaseT	
TDM Interface							
Number of E1s/ T1s Ports				Up to 16		2	
Framing	Unframed (transparent)						
Timing	Independent timing per port, Tx and Rx						
Standards Compliance	ITU-T G.703, G.826						
Latency	Configurable: 5-20 msec (default: 8 msec)						
Jitter & Wander	According to ITU-T G.823, G.824						
Service Protection	Monitored Hot Standby (MHS) 1+1 (using IDU-C)						
Dimensions and Weight							
Dimensions (w)x(h)x(d) Cm							
Weight	1U Half 19" width, 22x5x21			44x5x21	22x4.5x18		
Power	1.5 kg/3.3 lbs			1.2 kg/2.65 lbs	0.45 kg/1.0 lbs		
Power Feeding	-20 to -60 VDC (dual feed in IDU-C); 100-240 VAC, 50/60 Hz; -45 to -55 VDC (dual redundant power feeding for IDU-H)						
Environmental							
Operating Temperatures	0°C to 50°C/32°F to 122°F						
Humidity	90% non-condensing						
Safety							
TUV	IEC/EN 60950-1, UL 60950-1, CAN/CSA-C22.2 No. 60590-1						
EMC							
FCC	Class B Part 15 Subpart B						
ETSI	EN 300 386, EN 301 489-1, EN 301 489-4						
CAN/CSA	ICES 003 CISPR 22 Class B						
AS/NZS	CISPR 22 Class B						