



# AR60 & AR60X

## 60 GHz AdaptRate™ Wireless Links

### 60 GHz WIRELESS LINKS FOR HIGH-BANDWIDTH APPLICATIONS

BridgeWave is the leading supplier of gigabit RF connectivity solutions for service provider, government, military and enterprise applications. BridgeWave Gigabit Ethernet links extend network operator fiber to provide high-capacity access and backhaul, as well as extending enterprise LANs between buildings and sites.

#### FEATURES

##### PERFORMANCE:

- Full rate, full duplex, Gigabit or Fast Ethernet
- License-free operation in the U.S. and Canada
- AdaptRate switching overcomes rain downpours
- AdaptPath provides secondary path switching for maximum service availability
- Interference-free operation enabling high-density deployments
- Low latency for fiber-equivalent performance
- Forward Error Correction provides maximum link range



**AR60**



**AR60X**

### WIRELESS VIRTUAL FIBER SOLUTIONS FOR:



#### Enterprise

Server centralization, remote data storage and backup, leased line replacement.



#### Healthcare

Secure, HIPAA-compliant connectivity, medical office, lab network access, real-time imaging & records, application connectivity.



#### Education

High-performance campus connectivity, Wi-Fi and security camera backbone.



#### Government/Municipalities

Video surveillance systems, traffic control and monitoring, Wi-Fi/4.9GHz backhaul.



#### Service Provider

High-capacity business services, fiber extensions, cellular/Wi-Fi/WiMAX backhaul, redundant fiber overlays, mesh.



#### Mobile Backhaul

Future-proof full-rate gigabit backhaul for next generation 4G/LTE/WiMAX backhaul.

##### SECURITY:

- Highly secure narrow beamwidth antennas
- Secure Management software option provides HTTPS management access and RADIUS authentication (see Advanced Security datasheet)
- AES Encryption hardware option provides the ultimate level of full line-rate data protection (see Advanced Security datasheet)

##### RELIABILITY:

- Rigorous HALT/HASS testing; 28-Year MTBF
- Up to 99.999%, carrier-grade availability

##### EASE-OF-USE:

- Connects directly to standard network equipment
- All-outdoor, compact design
- Low voltage power cabling
- Rapid & flexible deployment
- Embedded web and SNMP based network management agent

### CONNECTIVITY RANGES

**AR60**

**Up to 1 Mile**  
(1.6 km)

**AR60X**

**Up to 1.5 Miles**  
(2.5 km)

	<b>AR60</b> AdaptRate™ Gigabit Ethernet		<b>AR60X</b> AdaptRate™ Extended Range	
Operating Mode	1000 Mbps full-duplex, 100 Mbps full-duplex, 1000/100 Mbps AdaptRate			
AdaptRate and AdaptPath Switching	Normal operation: 1000 Mbps / Path fade mode: 100 Mbps / Secondary link: Dependant of user supplied product capability			
	Switching time: < 50 milliseconds			
	AdaptRate switch point: -57 dBm / -59 dBm			
	AdaptPath switch point: Configurable			
	<b>1000 Mbps</b>	<b>100 Mbps</b>	<b>1000 Mbps</b>	<b>100 Mbps</b>
Data Rate	1000 Mbps full duplex	100 Mbps full duplex	1000 Mbps full duplex	100 Mbps full duplex
Latency	< 40 uSec	< 220 uSec	< 40 uSec	< 220 uSec
Link Budget	150.5 dB @ 10 <sup>-12</sup> BER	161.5 dB @ 10 <sup>-12</sup> BER	163.5 dB @ 10 <sup>-12</sup> BER	174.5 dB @ 10 <sup>-12</sup> BER
	152.5 dB @ 10 <sup>-6</sup> BER	163.5 dB @ 10 <sup>-6</sup> BER	165.5 dB @ 10 <sup>-6</sup> BER	176.5 dB @ 10 <sup>-6</sup> BER
RF Interface	58.1 GHz/62.9 GHz (FDD), digitally modulated (BFSK) with forward error correction RS(204,188)			
	1.4 GHz bandwidth	285 MHz bandwidth	1.4 GHz bandwidth	285 MHz bandwidth
	Min. link distance 65 ft (20 m)		Min. link distance 330 ft (100 m)	
	256-Bit AES Encryption option (see Advanced Security datasheet for details)			
Antenna	Integrated 10 in (25 cm) directional cassegrain		External 24 in (62 cm) directional cassegrain	
	Linear polarized (H/V), 40 dBi gain, 1.4° beam		Linear polarized (H/V), 46 dBi gain, 0.6° beam	
Ethernet Interfaces	1000base-SX with LC connectors - up to 270 m 62.5/125µm MMF, or 500 m 50/125µm MMF			
	10/100base-TX with RJ-45 connector (with integral surge suppressor) - up to 100 m CAT5 cable			
	Maximum Ethernet frame length: 1632 bytes			
Management	Web-based (HTML) embedded management agent: setup, security, status, statistics, software update			
	Secure Management Access (see Advanced Security datasheet for details)			
	SNMP support: MIB-II and BridgeWave enterprise MIB			
	Voltmeter test points: Receive Signal Level and Link Quality			
Power	RADIUS Authentication, SysLog support			
	Supplied 100 – 240 VAC input, +24 VDC output, indoor rated power supply (0°C to +40°C). 45 watts max. consumption			
Mount	Max. cable length: 650 ft (200 m) with 12AWG 400 ft (125 m) with 14AWG, stranded wires highly recommended (surge suppressor required)			
	Pole mount: 2-4.5 in (5-11 cm) OD		Fine-adjust pole mount: 3.5-4.5 in (8.9-11.4 cm) OD -- SCH40 or higher	
Size	Wall mount bracket			
	Radio/antenna unit: 12 w * 12 h * 6 d (in) / 30 w * 30 h * 15 d (cm)		Radio with antenna and mount: 24 w * 24 h * 20 d (in) / 62 w * 62 h * 50 d (cm)	
Weight	Radio with antenna and mount: 22 lbs (10 kg)		Radio with antenna and mount: 38.5 lbs (17.5 kg)	
Environmental	Operating temperature: -33 to +55°C (-27 to 131°F)			
	Operating altitude: 14,764 ft maximum (4,500 m)			
Wind Loading	50 lbs. force @ 100 MPH		202 lbs. force @ 125 MPH	
Regulatory	Safety: UL Listed, CE Mark, EN60950, meets FCC 1.1310 general population RF MPE limits			
	RF Certifications: U.S. FCC Part 15.255, Industry Canada RSS-210			
Install Kit	Voltmeter test cable, power connectors, visual alignment tool		Voltmeter test cable, power connectors	