



# AR60, AR60X, GE60, GE60X, FE60 & FE60X 60GHz Wireless Links

## 60GHZ WIRELESS LINKS FOR HIGH-BANDWIDTH DATA APPLICATIONS

BridgeWave is the leading supplier of gigabit RF connectivity solutions for service provider, government, military and enterprise applications. BridgeWave Gigabit and Fast Ethernet links extend LAN backbones between buildings and sites, as well as extending the reach of network operator fiber.

### FEATURES

#### PERFORMANCE:

- ❖ License-free operation in the U.S. and Canada
- ❖ Highly secure, narrow antenna beamwidths
- ❖ Interference-free operation, enabling high-density deployments
- ❖ Full rate, full duplex, Gigabit or Fast Ethernet
- ❖ AdaptRate™ switching overcomes rain fades
- ❖ Low latency for fiber-equivalent performance
- ❖ Forward Error Correction yields maximum link range

#### RELIABILITY:

- ❖ Rigorous HALT/HASS testing
- ❖ Up to 99.999% availability; 28-Year MTBF

#### 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



**AR60X & FE60X** Up to 1.65 Miles (2,650m)  
**GE60X** Up to 1.25 Mile (2,080 m)



**AR60 & FE60** Up to 1 Mile (1,710 m)  
**GE60** Up to .75 Mile (1,200 m)

#### WIRELESS "VIRTUAL FIBER" SOLUTIONS FOR SERVICE PROVIDER, GOVERNMENT/MILITARY, AND ENTERPRISE APPLICATIONS

LAN EXTENSION  
Extends LAN backbones between buildings

FIRST/LAST MILE  
Supports high-speed access services

METRO AREA NETWORK (MAN)  
Complements/extends metro fiber

SERVER CONSOLIDATION  
Enables centralization of IT facilities

SPATIAL DIVERSITY  
Creates redundant paths for mission-critical applications

FAST AND FLEXIBLE  
Provides temporary and disaster-recovery connectivity

FIBER ALTERNATIVE  
Offers fiber-equivalent performance, security and reliability

#### CONFIGURATIONS:

- Point-to-point
- Hot standby
- Multi-hop/repeater
- Hub-and-spoke
- Ring
- Mesh

## SPECIFICATIONS

	<b>AR60</b> AdaptRate™ Gigabit Ethernet		<b>AR60X</b> AdaptRate Extended-Range Gigabit Ethernet	
Operating Mode	Normal mode: operates as GE60 (see below)		Normal mode: operates as GE60X (see below)	
	Path fade mode: operates as FE60		Path fade mode: operates as FE60X	
Mode Switching	Mode switching time: < 50 milliseconds			
	Software configurable: full-time 1000 Mbps, full-time 100 Mbps, or AdaptRate			
	<b>GE60</b> Gigabit Ethernet	<b>FE60</b> Fast Ethernet	<b>GE60X</b> Extended-Range Gigabit Ethernet	<b>FE60X</b> Extended-Range Fast Ethernet
Data Rate	1000 Mbps full-duplex	100 Mbps full-duplex	1000 Mbps full-duplex	100 Mbps full-duplex
Latency	< 50 microseconds	< 150 microseconds	< 50 microseconds	< 150 microseconds
Link Budget	148.5dB @ 10 <sup>-12</sup> BER	159.5dB @ 10 <sup>-12</sup> BER	167dB @ 10 <sup>-12</sup> BER	178dB @ 10 <sup>-12</sup> BER
RF Interface	58.1GHz/62.9GHz (FDD), digitally modulated (BFSK) with forward error correction (RS 204,188)			
	1.4GHz bandwidth	140MHz bandwidth	1.4GHz bandwidth	140MHz bandwidth
	Min. link distance: 65ft (20 m)		Min. link distance: 330 ft (100 m)	
Antenna	Integrated 10 in (25 cm) directional cassegrain		External 2 ft (62 cm) directional cassegrain	
	Linear polarized (V/H), 40dBi gain, 1.4° beam		Linear polarized (V/H), 46dBi 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—up to 100 m Cat 5 cable (two Ethernet surge suppressors required)			
	Maximum Ethernet frame length: 1632 bytes			
Management	Web-based (HTML) embedded management agent: setup, security, status, statistics, software update			
	SNMP support: MIB-II and BridgeWave enterprise MIB			
	Voltmeter test points: Receive Signal Level and Link Quality			
Power	100-240 VAC input / +24 VDC output indoor power supply — 45 watts max. consumption			
	Max. cable length: 650 ft (200 m) with 12AWG; 400 ft (125 m) with 14AWG (24VDC surge suppressor required)			
Mount	Pole mount: 2-4.5 in (5-11 cm) OD		Fine-adjust pole mount: 2.8-4.5 in (7-11 cm) OD	
	Wall mount bracket			
Size	Radio/antenna unit: 30w * 30h * 12d (cm)		Radio with antenna/mount: 62w * 62h * 50d (cm)	
Weight	Radio: 5.4 kg (11.9 lbs)		Radio: 5.2 kg (11.5 lbs)	
	Mount: 3.0 kg (6.6 lbs)		Mount: 3.6 kg (8 lbs)	
			Antenna: 8.5 kg (19 lbs)	
Environmental	Operating temperature: -30 to +50 °C (-22 to 122 °F)			
	Operating altitude: 14,764 ft maximum (4,500 m)			
Wind Loading	50 lbs. force @ 100MPH		120 lbs. force @ 100 MPH	
Regulatory	Safety: UL Listed, CE Mark, 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	



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