



FlexPort®

	FP18/FP23/FP24	FP80	FP80-3000
Data Rate (full-duplex)	272 Mbps to 1 Gbps (FP24) 330 Mbps to 1 Gbps	240 Mbps to 1.2 Gbps	2.4 Gbps
Latency	As low as 110 µSec, depending on configuration	As low as <50 µSec, depending on configuration	<50µSec
Tx Power			
BPSK	N/A	+19 dBm	N/A
QPSK	+25 dBm	+19 dBm	+17 dBm
16QAM	+24 dBm	N/A	N/A
64QAM	+20.5 dBm	N/A	N/A
256QAM	+17 dBm	N/A	N/A
Rx Sensitivity @ 10 ⁻⁵ B.E.R.			
BPSK	50/100/150 MHz RF CH N/A	250/1000 MHz RF CH -74/-67 dBm	1000 MHz RF CH N/A
QPSK	-79/-76/-74 dBm	-71/-64 dBm	-62 dBm
16QAM	-73/-70/-68 dBm	N/A	N/A
64QAM	-67/-64/-62 dBm	N/A	N/A
256QAM	-61/-58/-56 dBm	N/A	N/A
RF Interface	17.7 – 19.7 GHz FP18 21.2 – 23.6 GHz FP23 24.25 – 25.25 GHz FP24	71-76/81-86 GHz	71-76/81-86 GHz
F.E.C.	Reed Solomon		
Ethernet Interfaces	Fast Ethernet & Gigabit Ethernet per IEEE 802.3. Up to four (4) field pluggable SFPs supporting multimode (-SX), single mode (-LX), or copper (-T) interface (FP80) One RJ-45 (CAT5e) 10/100/1000 Base-T		
TDM Interfaces	N/A N/A	STM-1/OC-3 155 Mbps STM-4/OC-12 622 Mbps Up to four (4) field pluggable SFPs for single mode fiber	N/A
Management	Web based HTTP embedded management agent: setup, security, status, statistics, Secure Management Access, RADIUS, Syslog support, SNMP support: MIB-II and BridgeWave enterprise MIB Ethernet OAM/CFM per 802.3ah, 802.1ag, and Y.1731 (Ethernet OAM available on FP80)		
Power	-48 VDC input (-37.5v to -70v range). Supports redundant "A" and "B" power feeds.		
Current	70 watts	45 watts	90 watts
Size & Weight (radio only)	11.9" dia x 7.25" deep 30.2cm x 18.4cm 14 lbs/6.3 kg	10.75" x 10.75" x 4" 27.3cm x 27.3cm x 10.2cm 10 lbs/4.5kg	10.75" x 10.75" x 11.5" 27.3cm x 27.3cm x 29.2cm 35 lbs/15.9kg
Environmental	Operating Temperature: -33°C to +55°C (-27.4°F to +131°F) Operating Altitude: 14,764 ft (4,500m) maximum		
Antennas	Antennas for FlexPort are available in 12" (30cm) to 72" (180cm) sizes from selected distribution partners	External 12" (30cm), H or V, 44 dBi, 0.8° External 24" (60cm), H or V, 51 dBi, 0.4°	

60 GHz

	FE60U	GE60	AR60/AR60X
Data Rate (full-duplex)	100 Mbps	1000 Mbps	100 Mbps (FE mode) 1000 Mbps (GE mode) 1000/100 Mbps AdaptRate™
Latency	<220µSec	<40µSec	<40µSec (GE mode) <220µSec (FE mode)
Link Budget @ 10 ⁻¹² BER	161.5 dB	150.5 dB	150.5 dB/163.5 (GE mode) 161.5 dB/174.5 (FE mode)
RF Interface	58.1/62.9 GHz (FDD), digitally modulated (BFSK) with Reed Solomon Forward Error Correction		
Ethernet Interfaces	1000Base-SX with LC connectors, up to 270m 62.5/125µm MMF or 500m 50/125µm MMF, 100Base-Tx with RJ45 connector, up to 100m CAT5 cable, internal surge suppression on CAT5 copper interface.		
Management	Web based HTML embedded management agent: setup, security, status, statistics, Secure Management Access, RADIUS, Syslog support, SNMP support: MIB-II and BridgeWave enterprise MIB		
Power	100-240 VAC input/+24 VDC output, indoor 0 – 40°C power supply, 45 watts max consumption. Max cable length 650 ft (200m) with 12 AWG, 400 ft (125m) with 14AWG, 24 VDC surge suppressor recommended		
Size & Weight (radio + antenna)	FE60U, GE60, AR60: 12" w x 12" h x 6" d (30 cm x 30 cm x 15 cm), 22 lbs (10 kg) AR60X: 24" w x 24" h x 20" d (62 cm x 62 cm x 50 cm), 38.5 lbs (17.5 kg)		
Environmental	Operating Temperature: -33°C to +55°C (-27.4°F to +131°F) Operating Altitude: 14,764 ft (4,500m) maximum		
Antennas	Integrated 10" (25cm), H or V, 40 dBi, 1.4° beam (FE60U, GE60, AR60) External 24" (60cm), H or V, 46 dBi, 0.6° beam (AR60X)		

A complete list of product specifications can be found at www.bridgewave.com/products



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High Capacity & Gigabit Wireless Solutions

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BridgeWave Products At-A-Glance



FL4G-UHA

FL4G-UHA

Data Rate (full-duplex)	1000 Mbps / 100 Mbps with optional AdaptRate™
Latency	Dependent on configuration. As low as 30 µSec
Link Budget @ 10 ⁻¹² BER	176 dB (100 Mbps w/ 12" (30cm) antenna) 190 dB (100 Mbps w/24" (60cm) antenna) 166 dB (1000 Mbps w/12" (30cm) antenna) 180 dB (1000 Mbps w/24" (60cm) antenna)
RF Interface	74.125/84.125 GHz (FDD), digitally modulated (BFSK) with Reed Solomon Forward Error Correction
Ethernet Interfaces	Ethernet: Physical layer: SFP, 1000Base-X, single mode (-SX) or multi-mode (-LX) fiber, 1000 Base-T with RJ45 connector – CAT5e or CAT6 cable
Networking	Quality of Service per IEEE 802.1p, DSCP and port based Scheduling: 8 queues allowing user configurable Strict Priority or Shaped Deficit Weighted Round Robin (SDWRR) MEF compliant traffic policing (two rate, three color scheme) VLAN per IEEE 802.1q, up to 4096 VLANs Provider Bridge Q-in-Q per IEEE 802.1ad Synchronous Ethernet (SyncE) per ITU-T G.8261, G.8262 and DNU section of G.8264 Precision Time Protocol (PTP) per IEEE1588.v2 (-2008) – Distributed transfer of clock to avoid variable asymmetric links Congestion Management: Tail Dropping Maximum Ethernet frame length: Jumbo packets up to 10,000 bytes MAC Layer: Supports MAC Learning, MAC Switching, MAC Ageing Link State Propagation: Rapid Link Shutdown (RSP) supports remote port LSP
Management	Web-based (HTTP/HTTPS) embedded management agent; Console Interface (CLI/SSH), IPv6 protocol stack SNMP Support: MIB-II and BridgeWave enterprise MIB, SNMP V1, V2C, V3 SysLog (RFC 3164, RFC 3195) event support RADIUS RFC2865 client support Ethernet OAM per 802.3ah (Link OAM), 802.1ag (Configuration Fault Management), Y.1731 (Performance Monitoring) Loopbacks: Ethernet (per port, per direction), Local Modem Test
Power	-48 VDC input, -37.5v to -70v range supports redundant feeds; 35 watts power consumption (depending on number and type of SFPs) Power over Ethernet (++) up to 328 ft (100 m) CAT5e/CAT6 cable separation
Size & Weight (radio only)	13.0" w x 8.6" h x 2.5" d (33.0 cm x 21.9 cm x 6.4 cm) 6.5 lbs (3 kg)
Environmental	Operating Temperature: -33°C to +55°C (-27°F to +131°F) Humidity: 100% all-weather operation Operating Altitude: Up to 4,500 m (14,764 ft) Water Ingress: IP66 RoHS & WEEE Compliant
Antennas	External 12" (30cm), H or V, 44 dBi, 0.8° beam External 24" (60cm), H or V, 51 dBi, 0.4° beam



EtherFlex

	6 GHz	7 GHz	8 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	32 GHz	38GHz
Data Rate (full-duplex)	Base data rate of 100 Mbps full-duplex with software upgradable capacity to maximum of 314 Mbps (ANSI radios) or 364 Mbps (ETSI radios) via software license key										
Latency	Dependent on configuration, as low as 150 µSec										
Tx Power											
40AM	+30 dBm	+30 dBm	+30 dBm	+28 dBm	+26 dBm	+26 dBm	+26 dBm	+25 dBm	+25 dBm	+23 dBm	+23 dBm
16QAM	+28 dBm	+28 dBm	+28 dBm	+26 dBm	+24 dBm	+24 dBm	+24 dBm	+23 dBm	+23 dBm	+21 dBm	+21 dBm
32QAM	+28 dBm	+28 dBm	+28 dBm	+26 dBm	+24 dBm	+24 dBm	+23 dBm	+23 dBm	+22 dBm	+21 dBm	+20 dBm
64QAM	+25 dBm	+25 dBm	+25 dBm	+22 dBm	+20 dBm	+20 dBm	+19 dBm	+19 dBm	+19 dBm	+17 dBm	+17 dBm
128QAM	+25 dBm	+25 dBm	+25 dBm	+22 dBm	+20 dBm	+20 dBm	+19 dBm	+19 dBm	+19 dBm	+17 dBm	+17 dBm
256QAM	+23.5 dBm	+23.5 dBm	+23.5 dBm	+20.5 dBm	+18.5 dBm	+18.5 dBm	+17.5 dBm	+17.5 dBm	+17.5 dBm	+15.5 dBm	+15.5 dBm
Rx Sensitivity @ 10 ⁻⁶ B.E.R. 28/30 MHz*											
40AM	-87 dBm	-87 dBm	-87 dBm	-87.5 dBm	-87.5 dBm	-87.5 dBm	-87.5 dBm	-87.5 dBm	-87 dBm	-86 dBm	-85 dBm
16QAM	-80 dBm	-80 dBm	-80 dBm	-80.5 dBm	-80.5 dBm	-80.5 dBm	-80.5 dBm	-80.5 dBm	-80 dBm	-79 dBm	-78 dBm
32QAM	-76.5 dBm	-76.5 dBm	-76.5 dBm	-77 dBm	-77 dBm	-77 dBm	-77 dBm	-76.5 dBm	-76.5 dBm	-75.5 dBm	-74.5 dBm
64QAM	-73.5 dBm	-73.5 dBm	-73.5 dBm	-74 dBm	-74 dBm	-74 dBm	-74 dBm	-73.5 dBm	-73.5 dBm	-72.5 dBm	-71.5 dBm
128QAM	-70.5 dBm	-70.5 dBm	-70.5 dBm	-71 dBm	-71 dBm	-71 dBm	-71 dBm	-70.5 dBm	-70.5 dBm	-69.5 dBm	-68.5 dBm
256QAM	-67.5 dBm	-67.5 dBm	-67.5 dBm	-68 dBm	-68 dBm	-68 dBm	-68 dBm	-67.5 dBm	-67.5 dBm	-66.5 dBm	-65.5 dBm
Rx Sensitivity @ 10 ⁻⁶ B.E.R. 50/56 MHz*											
40AM	-	-	-	-	-	-	-	-	-	-	-
16QAM	-	-77 dBm	-77 dBm	-77.5 dBm	-77.5 dBm	-77.5 dBm	-77.5 dBm	-77 dBm	-77 dBm	-76 dBm	-75 dBm
32QAM	-	-73.5 dBm	-73.5 dBm	-74 dBm	-74 dBm	-74 dBm	-74 dBm	-73.5 dBm	-73.5 dBm	-72.5 dBm	-71.5 dBm
64QAM	-	-70.5 dBm	-70.5 dBm	-71 dBm	-71 dBm	-71 dBm	-71 dBm	-70.5 dBm	-70.5 dBm	-69.5 dBm	-68.5 dBm
128QAM	-	-67.5 dBm	-67.5 dBm	-68 dBm	-68 dBm	-68 dBm	-68 dBm	-67.5 dBm	-67.5 dBm	-66.5 dBm	-65.5 dBm
256QAM	-	-64.5 dBm	-64.5 dBm	-65 dBm	-65 dBm	-65 dBm	-65 dBm	-64.5 dBm	-64.5 dBm	-63.5 dBm	-62.5 dBm
RF Interface	Non-Std	1.025" dia	1.025" dia	WR75	WR75	WR62	WR42	WR42	WR42	WR28	0.219" dia
Ethernet Interfaces	Two RJ-45 (CAT5e) 10/100/1000 Base-T Fast Ethernet & Gigabit Ethernet per IEEE 802.3										
Networking	Built-in two-port switch supports jumbo frames to 9720 bytes QoS: Priority queuing per 802.1p (VLAN or DiffServ priority bytes) VLAN tagging per 802.1q Flow Control per 802.3x										
Management	Web-based HTTP embedded management agent, SNMP v2/v3 support: MIB-II And BridgeWave enterprise MIB, Console Port Management Protocols: HTTP, SNMPv2, SNMPv3, SSH, Telnet, and TFTP										
Power	-48 VDC input, Power over Ethernet 50 to 58 watts max power consumption depending on frequency										
Size & Weight (radio only)	10.9" dia x 6.5" deep (27.7 cm x 16.5 cm) 12.3 lbs (5.6 kg)										
Environmental	Operating Temperature: -33° C to +55° C (-27° F to +131° F) per ETS 300 019-2-4 Class 4M5 Operating Altitude: 60 m (197 ft) below and 5,000 m (16,405 ft) above sea level Water Ingress: IP67										
Antennas	12" (30cm) thru 72" (180cm) available with direct ODU mount										

* Note about Rx Sensitivity values in this document. The values in this document reflect only a few channel bandwidth possibilities and not the complete product range. Refer to the EtherFlex data sheet for a complete list of supported frequencies, channel bandwidths, modulations and their respective TX power, Rx Sensitivity and Ethernet throughput specifications.