Tsunami.GX 32
Wireless Point-to-Point Ethernet Bridge

Fast, Cost-Effective Extension of IP Networks

Tsunami™.GX is a full-duplex point-to-point wireless Ethernet bridge with an innovative split-box design. This latest generation of high-capacity wireless bridges is designed to reduce the expense of extending IP networks and to simplify installation. Secure wireless technology significantly reduces total cost of ownership and speeds deployment, while a split-box design adds installation flexibility. The Tsunami.GX also provides best-in-class system performance with native IP interfaces by eliminating the overhead associated with T1/E1-to-Ethernet connections.

- Perfect for data and data/voice network backhaul applications and for replacing, extending or backing up leased lines
- Indoor-only installation facilitates quick maintenance and easier upgrades
- Indoor/outdoor installation improves system gain and reduces total cost of ownership

Easily Manage and Troubleshoot Your Wireless Network

Tsunami.GX bridges offer sophisticated, preventative management tools to simplify network maintenance and eliminate downtime. Advanced diagnostic tools identify and isolate potential issues before they impact the network.

- Standards-based SNMP management and web-based GUI simplifies remote management and integrates easily into existing software platforms
- Built-in spectrum analyzer and an alarm log facilitate RF planning and post-deployment tuning

Greater than leased line speeds with the Ease of Ethernet

Backed by more than 20 years of wireless design innovation, Tsunami wireless bridge family easily and affordably enables network extension, redundancy and backhaul. Tsunami wireless bridges eliminate fiber installation costs and leased line fees to bring you the capacity of more than eight leased lines with the TCO of Ethernet.

- High capacity for bandwidth-intensive applications such as PBX extension, data backhaul and critical link redundancy
- No expensive recurring leased line costs
- Superior system gain ensures consistent, high quality network operation
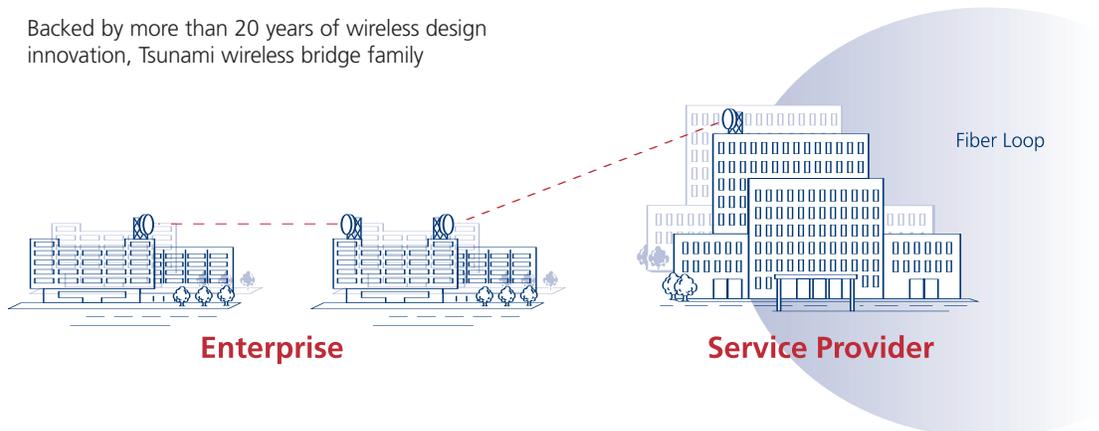
Deploy in Days

Because Tsunami bridges operate in license-exempt ISM frequency bands, they can be deployed quickly – eliminating the long lead times associated with leasing lines or trenching new fiber optic cable. This is especially useful in network redundancy and contingency planning.

- Rapid device deployment and flexible re-deployment
- ISPs maintain business continuity, even in severe conditions
- Enterprises minimize costly business application downtime

Reliable and Secure

A wireless alternative to a wired network yields quality as well as flexibility. Tsunami bridges offer the highest security and reliability available in networking today.

- Over 99.999% reliable RF transmission
- Meets or exceeds wired network security
- Proprietary encryption methods ensure secure data transmission

APPLICATIONS

- Enterprise LAN and PBX extension
- WAN connection redundancy
- ISP remote POP
- ISP direct customer connections using point-to-point
- Affordable multipoint backhaul
- Extension of an existing fiber network

Enterprise

Service Provider

Fiber Loop

Tsunami.GX 32 Specifications

FREQUENCY	DIGITAL CAPACITY[1]	NON-OVERLAPPING FREQUENCY PAIRS	FCC EMISSION DESIGNATOR	THRESHOLD (BER=1X10^{-6})	OUTPUT POWER	SYSTEM GAIN	DISTANCE (MILES/KM)
5725-5850 MHz	32 Mbps	3	13M4G7D	≥85 dBm	≥23.5 dBm	≥109.5 dB, 112 dB typ.	42/68
	24 Mbps	2		≥86 dBm		≥108.5 dB, 111 dB typ.	44/71

SYSTEM

Configuration	Split-box: IDU, RF Unit
Modulation	DSSS; QPSK
Frequency Stability	±10 ppm
RF Attenuation Range[1]	20 dB
Maximum Receive Signal	-20 dBm error free; 0 dBm no damage
Error Floor	<10^{-11}
Latency (T1)[2], one-way	325 μsec ±10%
Error Correction	Reed-Solomon
Security	12 character Link ID (48 bits)
Regulatory Compliance	FCC Part 15.247; IC RS210
FCC ID	HZB-S58-GX1
Industry Canada ID	1856A-U5358GX1

DIGITAL LINE INTERFACES

Main Data Channel[4]

3-Channel Mode	32 Mbps aggregate; 16 Mbps full duplex
2-Channel Mode	24 Mbps aggregate; 12 Mbps full duplex
10/100 Base T	RJ-45 modular jack; Auto-sense MDI/MDI-X
10/100 Base FX	SC-Type, multi-mode Fiber
Compliance	IEEE 802.3

Wayside Data Channels

T1/E1	DSX-1 (2 each) or CEPT-1 (2 each), software selectable RJ-48C modular jack

Compliance

Maximum Packet Size	1536 bytes
T1	ANSI-1987-T1, CCITT G.823
E1	G.703

AUIXILIARY INTERFACES

Orderwire (DTMF)	RJ-11, 100 addresses
VF	8 pin modular jack, 4-wire 0dBm @ 600 ohm, balanced
Aux Data (serial)	8 pin modular jack, EIA-561 19.2kbps, selectable, DCE

FAULT AND CONFIGURATION MANAGEMENT

Network Management	SNMP v2c (MIB II, enterprise MIBs), embedded HTML server, Telnet, VT-100 terminal
Far End Management	Via NMS (embedded router, gateway address, subnet mask), front panel display

Physical Interfaces

NMS 1	10/100BaseT, RJ-45, auto-sense
NMS 2	10/100BaseT, RJ-45, auto-sense
Configuration (serial)	EIA-574, 9600bps, 9-pin Sub-D, DTE

External Alarm Interface

Connector	9-pin Sub-D female
Outputs	2 Form C Relays (Major, Minor)
Inputs	2 TTL with internal pull-ups

POWER/ENVIRONMENT

Input Voltage Range	-20 to -60 Vdc or +20 to +60 Vdc
Power Consumption	<70 Watts
Power Connector	3-pin terminal block
Operating Temperature	
IDU	0°C to +50°C
RF Unit	-30°C to +55°C
Humidity	
IDU	95%, non-condensing
RF Unit	100%, condensing
Altitude	up to 15,000 ft/5000 m
Wind Loading (RF unit)	up to 110 mph/96 kts
MTBF IDU	>100,000 Hours
MTBF RF Unit	>100,000 Hours

PHYSICAL DIMENSIONS

	IDU	RF Unit
Size (in/cm)	17.2 X 10.9 X 1.72 (43.6 X 27.6 X 4.4)	14.1 X 10.9 X 1.72/ (35.8 X 27.6 X 4.4)
Weight (lbs/kg)	6.5/2.9	12.0/5.4

MECHANICAL

RF Unit

Antenna Port	Type-N female (outdoor RF cable not provided)
IDU Port	TNC female
Cable to IDU	LMR-240 or equiv. <100m; LMR-400 or equiv. <200m; LMR-600 or equiv. <300m

Mounting

IDU	EIA rackmount, 19" or 23", 1RU
RF Unit	EIA rackmount, 19"or 23", 1RU, or outdoor pole mount
Pole Mount Bracket (optional)	

SELECTABLE NON-OVERLAPPING FREQUENCY PLANS

2-Channel Mode	A: 5734 / 5819 GHz B: 5756 / 5841 GHz
3-Channel Mode	A: 5731.5 / 5816.5 GHz B: 5745.0 / 5830.0 GHz C: 5738.5 / 5843 GHz

ORDERING INFORMATION

64765	Low Band Terminal
64766	High Band Terminal
ACC-GX-RF-2	Optional RF Unit Outdoor Mounting Kit
201-31075-1	Optional AC Adapter 110/220 VAC with cable and connector
Call for details	ServPak 24x7 Enhanced Service and Support contracts (1yr-3yr)

SHIPPING CONFIGURATION

Tsunami.GX 32 IDU (Indoor Unit); ISM Low Band or High Band RF Unit; IDU Indoor Rack Management Kit; ACC-GX-RF-1 RF Unit Indoor Mounting Kit (includes 12" IDU to RFU TNC-to-TNC cable); Quick Install Guide; CD-User Documentation

[1] Output power is specified at zero attenuation

[2] Does not include air latency of approximately 5.4 μsec/mile

[3] RF Unit installed outdoors with 6ft. parabolic antenna, 99.995% one-way RF Link availability, average climate/terrain, no multipath reflection. Assumes FCC regulations for EIRP

[4] No Waysides enabled

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