

# Tsunami

## Fast, Cost-Effective Wireless Connectivity

Tsunami 10BaseT is a wireless Ethernet bridge providing greater capacity and significantly lower cost than using multiple dedicated T1/E1 leased lines—at distances of over 40 miles (64 km).

Using high-quality radio transmitters, standard IP links, and low-cost Ethernet switches, Tsunami 10BaseT allows you to bridge Ethernet LANs between office buildings, factories, warehouses, and remote locations—with minimal capital investment and no monthly leased-line costs.

Because it is wireless and license-free, you can install Tsunami 10BaseT when and where you need it, without right-of-way limitations, frequency licensing delays, or waiting for your telecommunications provider to deliver new lines.

Tsunami 10BaseT also provides a separate T1/E1 connection in addition to the Ethernet connection, allowing you to extend PBX connectivity between buildings without the need for additional leased lines.

### EXTEND OR ENHANCE YOUR NETWORK VIRTUALLY OVERNIGHT

With Tsunami 10BaseT, there are no trenches to dig, no lines to lease, and no regulatory red tape to cut through. Easy installation and hassle-free operation allow you to quickly eliminate bandwidth bottlenecks, making Tsunami 10BaseT Ethernet bridges the ideal solution for:

- Organizations building out networks to include WAN connectivity between buildings, campuses, and other remote locations more than 40 miles (60 km) away
- Establishing high-speed connections between Internet or network service providers and their customers
- Service providers extending existing fiber and wire networks
- Organizations or service providers seeking network redundancy for mission-critical connections

### ABOUT THE TSUNAMI PRODUCT FAMILY

The Tsunami family of Ethernet bridges provide wireless solutions that meet the growing demand for transparent and reliable high-speed network interconnectivity. In addition to Tsunami 10BaseT, the entry-level Tsunami product, the Tsunami product line includes:

**Tsunami 100BaseT/F**, offering wireless Fast Ethernet connectivity for data communications at full-duplex 100BaseT/F speeds.

**Tsunami 1000BaseSX**, the world's first license-exempt Ethernet bridge to provide gigabit wireless connectivity using native IP.



#### PRODUCT HIGHLIGHTS

##### Fast and Easy to Deploy

- License-exempt frequencies eliminate regulatory delays
- Wireless connectivity eliminates the need for leasing lines from your telecommunications provider

##### Rapid Return on Investment

- Fast payback compared to the costs of leasing multiple T1 lines
- Next-day deployment enables faster service activation and payback

##### Flexible, Scalable Solution that Can Grow with Your Business

- Easy integration with new high-speed switches, legacy data, and voice network products
- Multiple frequency options minimize interference when co-locating radios
- Scales to support new services and more users as needs change

#### KEY FEATURES

- Additional T1/E1 for voice or data
- Frequency Ranges: 2.4 GHz, 5.8 GHz
- Compliant with FCC (United States) Part 15.247 (ISM) and IC (Canada) RSS-210, IC RSS-139 standard & ETSI
- Point-to-point communications from less than 1 mile/km to more than 40 miles/64 km
- Wide DC power input ( $\pm 20$  to  $\pm 63$  V), AC adapter available
- Wide operational temperature
- Built-in loopback, far-end monitoring, and private telephone network orderwire
- 2-year warranty

## Product Specifications

PRODUCT	MODEL NUMBER	FREQUENCY BAND	AGGREGATE THROUGHPUT	CHANNEL PLANS	THRESHOLD (BER=1x10 <sup>-6</sup> )	OUTPUT POWER (MINIMUM)	SYSTEM GAIN	DISTANCE (MILES/KILOMETERS)
Tsunami 8	31850-41/2	5725-5850 MHz	16 Mbps	3 (A, B, C)	-86 dBm	+20 dBm	106 dB	<1 to >40/64
Tsunami 10	31190-41/2	2400-2483.5 MHz	24 Mbps	1 (A)	-86 dBm	+27 dBm	111 dB	<1 to >30/48
Tsunami 10	31145-41/2	5725-5850 MHz	24 Mbps	2 (A, B)	-84 dBm	+20 dBm	104 dB	<1 to >30/48

### SYSTEM

#### Capacity

Tsunami 8	8 Mbps full duplex
Tsunami 10	10 Mbps full duplex + T1/E1

#### Antenna Connector

N-Type female

#### RF Attenuation Range

16 dB minimum for 2483.5 MHz model  
 20 dB minimum for 5850 MHz models

#### Maximum Receive Level

-5 dBm, error-free

#### Latency

<500 µs

#### Processing Gain

10 dB, minimum

#### Regulatory Compliance

FCC Part 15.247  
 IC RSS210/139  
 ETS 300 328

#### Security

2e<sup>8</sup> security coding

### DATA INTERFACE

#### Ethernet Interface

10BaseT

#### Connector

RJ-45 Female

#### Compliance

IEEE 802.3d

### AUXILIARY CONNECTIONS

#### Orderwire Handset

2-wire, RJ-11

#### VF Orderwire Bridge

600 ohm balanced, 4-wire,  
 0 dBm, DB25

#### Diagnostics Port

RS-232/RS-422  
 (craft/TBOS), DB9

#### Aux. Data Port

RS-232/RS-422,

#### (Clear Service Channel)

≤9600 baud, DB9

#### Alarm Port

2 ea. Form C, 6 TTL, DB25

#### Test Points

Output power, near-far-end  
 RSL, GND

#### Wayside Channels<sup>1</sup>

T1 (DS-1) or E1 (CEPT)

### POWER/ENVIRONMENT

#### DC Power

±20 to ±63 Volts, <45 Watts

#### Optional AC Adapter

100-250 Volts, 50-60 Hz

#### Power Connector

6-pin barrier strip, plug-in

### POWER/ENVIRONMENT (CONT.)

#### Operational Temperature

-30° to 65° C

#### Humidity

0 to 95%, non-condensing

#### Altitude

15,000 feet/4572 meters, maximum

### PHYSICAL-INDOOR UNIT

#### Size (WxHxD)

17.2 x 3.5 x 14.5 inches  
 43.7 x 8.9 x 36.8 cm

#### Weight

11 lbs/5 kg

### MOUNTING (INSTALLATION)

#### EIA Rack Mount

19 inch/48.2 cm,  
 2-rack unit height  
 (mounting brackets supplied)

### FREQUENCY CHANNEL PLANS

Model Number	Channel Plan	Frequency
31850-41/2	A1/A2	5735/5800 MHz
31850-41/2	B1/B2	5755/5820 MHz
31850-41/2	C1/C2	5775/5840 MHz
31190-41/2	A1/A2	2429/2443 MHz
31145-41/2	A1/A2	5740/5803 MHz
31145-41/2	B1/B2	5772/5834 MHz

<sup>1</sup>Model 31190-41 has 1 dedicated T1 wayside and allows connection of 1 additional T1 that reduces 10BaseT throughput by 1.5 Mbps  
 Model 31190-42 has 1 dedicated E1 wayside and allows connection of 1 additional E1 that reduces 10BaseT throughput by 2 Mbps  
 Model 31850-41 allows connection of 1 T1 that reduces 10BaseT throughput by 1.5 Mbps  
 Model 31850-42 allows connection of 1 E1 that reduces 10BaseT throughput by 2 Mbps  
 Model 31145-41 has 1 dedicated T1 wayside and allows connection of 1 additional T1 that reduces 10BaseT throughput by 1.5 Mbps  
 Model 31145-42 has 1 dedicated E1 wayside and allows connection of 1 additional E1 that reduces 10BaseT throughput by 2 Mbps

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