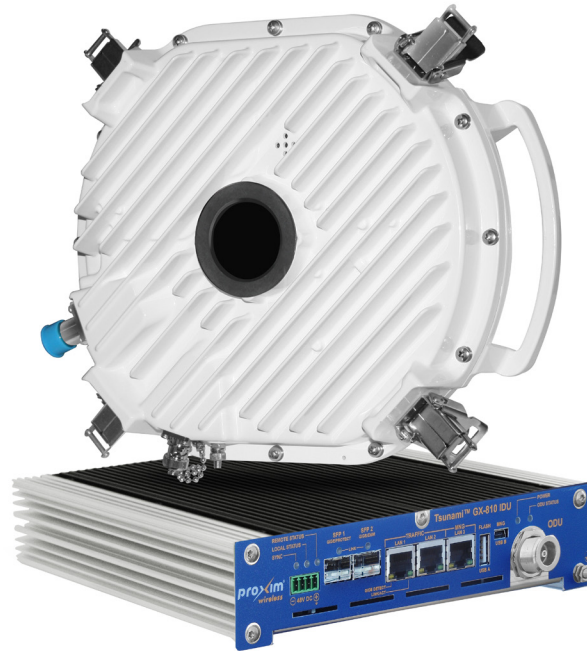


Tsunami® GX-810

Carrier Grade Licensed Microwave Redundant Backhaul



Tsunami® GX-810 is the evolution of Proxim's Point-to-Point (PtP) licensed microwave product improving performance, reliability and security.

Tsunami® GX-810 is a high speed licensed Point-to-Point (PtP) microwave product capable of operating in 6, 11, 15, 18 or 23 GHz licensed bands with more than 700 Mbps aggregate throughput. It supports an array of user configurable channel bandwidths ranging from 7 to 60 MHz and hitless automatic modulation up to QAM 256. It also introduces a new set of security features and can combine two IDU for redundancy or aggregation purpose.

Tsunami® GX-810 has an extremely small foot print and is designed with a split-mount architecture which consists of a compact Indoor Unit (IDU) and an Outdoor Unit (ODU) that is snap to install and maintain.

High Performance

Tsunami® GX-810 over achieves Tsunami® GX-800 performance

- QAM 256 modulation with 60 MHz channel provides up to 730 Mbps throughput
- True 2+0 IDU aggregation doubles ethernet capacity and delivers up to 1460 Mbps throughput
- Four queues Quality of Services, based on physical port, 802.1p tag or IP DiffServ, ensure optimized priority for all type of traffic.
- Up to 30 dBm transmit power reaches longer distance without the need of extra-large antennas

Extremely Reliable

Tsunami® GX-810 is designed to provide un interrupted services

- 1+1 IDU protection in Hot Stand By (HSB), Spatial Diversity (SD) or Frequency Diversity (FD) mode ensures data delivery even in case of hardware failure
- Hitless Adaptive Modulation (ACM) optimized performance whatever the RF condition

Highly Secure

Tsunami® GX-810 provides top security to ensure full protection of sensitive information

- AES 128 and 256 encryption guaranties data confidentiality
- Secure management (https/SSL, telnet/SSH and SNMPv3) prevents unwanted configuration change
- Four independent, over the air, ethernet channel separates traffic from different sources

Carrier Grade

Tsunami® GX-810 advanced feature matches Operator requirements

- Jumbo ethernet frame (up to 10k byte) seamlessly transports MPLS traffic
- SyncEthernet and IEEE 1588 Precision Time Protocol (PTP) propagates network synchronization over the wireless backbone
- External Multiplexer Module (EMM) offers additional E1/T1 (16 to 64) ports to fit network architecture

PRODUCT MODELS

GX-810-06LK	Tsunami® GX-810, 6 GHz Microwave Link Series
GX-810-11LK	Tsunami® GX-810, 11 GHz Microwave Link Series
GX-810-15LK	Tsunami® GX-810, 15 GHz Microwave Link Series
GX-810-18LK	Tsunami® GX-810, 18 GHz Microwave Link Series
GX-810-23LK	Tsunami® GX-810, 23 GHz Microwave Link Series

INTERFACES

ETHERNET (IDU)	Two Gigabit Ethernet 1000Mbps Base T (RJ45) ports with 10k jumbo frame support and two SFP slots for additional port extension (1000Base-SX/LX)
MANAGEMENT (IDU)	One Gigabit Ethernet 1000Mbps Base T (RJ45) port and two USB ports (one for management, one for firmware upgrade)
IF (IDU – ODU)	One N type connector on each unit (IDU and ODU) supporting Tx IF + Rx IF + Telemetry + DC
RSSI (ODU)	One BNC connector with weatherproof cap
ANTENNA (ODU)	Wave Guide port and antenna direct mount buckle

RADIO & TRANSMISSION

MODULATION QPSK, 8PSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM with Hitless adaptive modulation, asymmetrical modulation

FREQUENCY BANDS	6U/L	11	15	18	23
Frequency Band (GHz)	6U/L	11	15	18	23
Frequency Range (GHz)	5.925 - 7.125	10.675 - 11.745	14.501 – 15.355	17.685 - 19.710	21.200 - 23.618
T/R Spacing (MHz)	160 & 170, 252.04, 300, 340 & 350	490 & 500, 530	315 & 322, 640	1008 & 1010, 1560	1008, 1200, 1232

CHANNEL BANDWIDTH Wideband support. Configurable from 7 to 60 MHz

TX POWER	FREQUENCY BANDS (GHz)	6U/L	11	15	18	23
	QPSK	30	28	26	25.5	25
	8PSK	29	26.5	25	24	24
	16QAM	28	25	24	23	23
	32QAM	28	25	24	23	23
	64/128QAM	25	22	20	19	19
	256QAM	23	20	18	17	17

TX POWER CONTROL 0.5 dBm Steps. Automatic TPC

RX SENSITIVITY	Channel Size (MHz)	10MHz	20MHz	30MHz	40MHz	50MHz	60MHz
	QPSK	-93,5	-90	-88,5	-87	-86	-85,5
	8PSK	-88	-84,5	-82,5	-81,5	-80	-79,5
	16QAM	-86,5	-83	-81,5	-80	-79	-78,5
	32QAM	-83	-80	-77,5	-76,5	-75	74,5
	64QAM	-80	-77	-74,5	-74,5	-72,5	-72
	128QAM	-77	-74	-72,5	-71	-69,5	-69
	256QAM	-74,5	-71,5	-69,5	-68,5	-66,5	-66

ERROR CORRECTION Low Density Parity Check (LDPC) FEC, Internal BER tester

FREQUENCY STABILITY ±5 ppm

MANAGEMENT

LOCAL	USB port (alternative IP port)
REMOTE	In-Band or Out-of-Band: Telnet and SSH, Web GUI HTTP and SSL - HTTPS, SNMPv3
SNMP	SNMP v1-v2c-v3, RFC-1213, RFC-1215, RFC-2790, RFC-2571, RFC-3412, RFC-3414, Private MIB
OTHER	Spectrum analyzer

SECURITY

ENCRYPTION AES 128/256 bits

NETWORK

MODES	Bridging and NAT routing. Up to four independent traffic channel over the air
CONFIGURATION SCHEME	1+0, 1+1 HSB/SD/FD (protected) or 2+0 (true aggregate)
LATENCY	100 µs – 400 µs
THROUGHPUT CAPACITY	365 Mbps full duplex (730 Mbps true aggregate)
QOS	4 queues based on physical port, 802.1p tag or IP DiffServ
VLAN	802.1Q (4096 VLAN IDs). Transparent, Trunk, Access or Hybrid mode

SYNCHRONIZATION

ETHERNET Sync ETH and IEEE 1588 PTP

PORT EXTENSION

TDM 16 x E1/T1 EMM module via SFP slot (four modules can be daisy chained)

POWER

POWER INPUT -48 VDC (EN 300 132-2)

MAX POWER CONSUMPTION IDU: up to 22 W (full port connection), ODU : 25 W typical, 35 W max

ENVIRONMENTAL SPECS

OPERATING TEMPERATURE	RELATIVE HUMIDITY
IDU: -5 to +45°C, ODU: -33 to +55°C (Operational at -45°C but not guaranteed to be spec compliant)	IDU: 95% (non-condensing), ODU: 100%

PHYSICAL SPECS

DIMENSIONS	WEIGHT
IDU : 10.0 x 1.73 x 9.45 in (Standard 19" Half rack mount & 1U height), ODU : 10.9 x 9.4 x 3.6 in	IDU : 4.6 lbs, ODU : ≤ 9.5 lbs

PACKAGE CONTENTS

- Two Tsunami® GX-810 ODU
- Two rack mounting kit for IDU
- Two grounding kit for IDU
- Two Tsunami® GX-810 IDU
- Two ethernet cable for IDU
- One Quick Installation Guide

WARRANTY

2 year parts and labor. ServPak Extended Support available.

PERFORMANCE	Modulation Name	Modulation Type	BW [MHz]	Symbol Rate [Mbaud]	Over Air bit rate [Mbps]	PBPS data rate [Mbps]	USER data rate [Mbps]	Emission Designator
	004_10000_01	QPSK	10	8,59	17,2	15,2	15	10MOD1D
	008_10000_01	8PSK	10	8,59	25,8	22,7	22	10MOD1D
	016_10000_01	16QAM	10	8,59	34,4	30,4	30	10MOD1D
	032_10000_01	32QAM	10	8,59	43	38	38	10MOD1D
	064_10000_01	64QAM	10	8,59	51,6	47,1	47	10MOD1D
	128_10000_01	128QAM	10	8,59	60,2	55	54	10MOD1D
	256_10000_01	256QAM	10	8,59	68,8	63,4	63	10MOD1D
	004_20000_01	QPSK	20	17,58	35,2	31,3	31	20MOD1D
	008_20000_01	8PSK	20	17,58	52,7	46,7	46	20MOD1D
	016_20000_01	16QAM	20	17,58	70,3	63,1	62	20MOD1D
	032_20000_01	32QAM	20	17,58	87,9	78	77	20MOD1D
	064_20000_01	64QAM	20	17,58	105,5	97,3	96	20MOD1D
	128_20000_01	128QAM	20	17,58	123	113,6	112	20MOD1D
	256_20000_01	256QAM	20	17,58	140,6	130	129	20MOD1D
	004_30000_01	QPSK	30	26,37	52,7	47,2	47	30MOD1D
	008_30000_01	8PSK	30	26,37	79,1	70,2	69	30MOD1D
	016_30000_01	16QAM	30	26,37	105,5	94,9	94	30MOD1D
	032_30000_01	32QAM	30	26,37	131,8	117,1	116	30MOD1D
	064_30000_01	64QAM	30	26,37	158,2	146,7	145	30MOD1D
	128_30000_01	128QAM	30	26,37	184,6	171,1	169	30MOD1D
	256_30000_01	256QAM	30	26,37	210,9	196,1	194	30MOD1D
	004_40000_01	QPSK	40	34,57	69,1	62,3	62	40MOD1D
	008_40000_01	8PSK	40	34,57	103,7	92,2	91	40MOD1D
	016_40000_01	16QAM	40	34,57	138,3	124,5	123	40MOD1D
	032_40000_01	32QAM	40	34,57	172,9	153,6	152	40MOD1D
	064_40000_01	64QAM	40	34,57	207,4	188	186	40MOD1D
	128_40000_01	128QAM	40	34,57	242	222	220	40MOD1D
	256_40000_01	256QAM	40	34,57	276,6	255,9	253	40MOD1D
	004_50000_01	QPSK	50	44,34	88,7	79,5	79	50MOD1D
	008_50000_01	8PSK	50	44,34	133	118,3	117	50MOD1D
	016_50000_01	16QAM	50	44,34	177,3	159,8	158	50MOD1D
	032_50000_01	32QAM	50	44,34	221,7	197,1	195	50MOD1D
	064_50000_01	64QAM	50	44,34	266	244,6	242	50MOD1D
	128_50000_01	128QAM	50	44,34	310,4	284,8	282	50MOD1D
	256_50000_01	256QAM	50	44,34	354,7	328,3	325	50MOD1D
	004_60000_01	QPSK	60	49,41	98,8	86,2	85	60MOD1D
	008_60000_01	8PSK	60	49,41	148,2	128,9	128	60MOD1D
	016_60000_01	16QAM	60	49,41	197,7	172,7	171	60MOD1D
	032_60000_01	32QAM	60	49,41	247,1	219,6	217	60MOD1D
	064_60000_01	64QAM	60	49,41	296,5	268,9	266	60MOD1D
	128_60000_01	128QAM	60	49,41	345,9	317,4	314	60MOD1D
	256_60000_01	256QAM	60	49,41	395,3	366	362	60MOD1D