

# Ligo PTP 900-13/900-N

900 MHz point-to-point integrated/connectorized backhaul device



## Product Overview

LigoWave delivers the most robust 900 MHz PTP solution on the market by coupling ultra-high output power, flexible channel width capability (5/10/20 MHz), and industry-leading proprietary software mechanisms.

The LigoPTP 900 Series products offer carrier-class link connectivity, delivering true TCP throughput capability of 40 Mbps and packets-per-second performance of 35,000 PPS. The LigoPTP 900 series products offer an unlicensed PTP solution, ideal for dedicated access or backhaul applications (including VOIP) where other frequencies may be unavailable.

The LigoPTP 900-13/900-N product features an integrated 13 dBi panel antenna, with narrow beamwidth to enable long-range, rock-solid link connectivity or an external N-connector for your own antenna.

The LigoPTP 900-13/900-N showcases an array of advanced software mechanisms that provide optimal point-to-point connectivity for high-throughput, long distance links.

LigoWave's proprietary PTP mechanisms utilize techniques such as Dynamic Time Division Duplexing (TDD) to dynamically allocate bandwidth in the direction needed, thus increasing link efficiency and greatly decreasing the impact that distance has on throughput of the link.

The LigoWave point-to-point products also feature selective repeat ARQ technology, an enhanced error-correction software mechanism that optimizes data traffic to provide very high throughput over high-bandwidth, long-range links even in the presence of interference.

The LigoPTP 900-13/900-N is also compatible with RCMS, a centralized configuration, firmware, and statistics server offered by LigoWave for carrier class diagnostic and configuration management capabilities.

# Ligo PTP 900-I 3/900-N

900 MHz point-to-point integrated/connectorized backhaul device

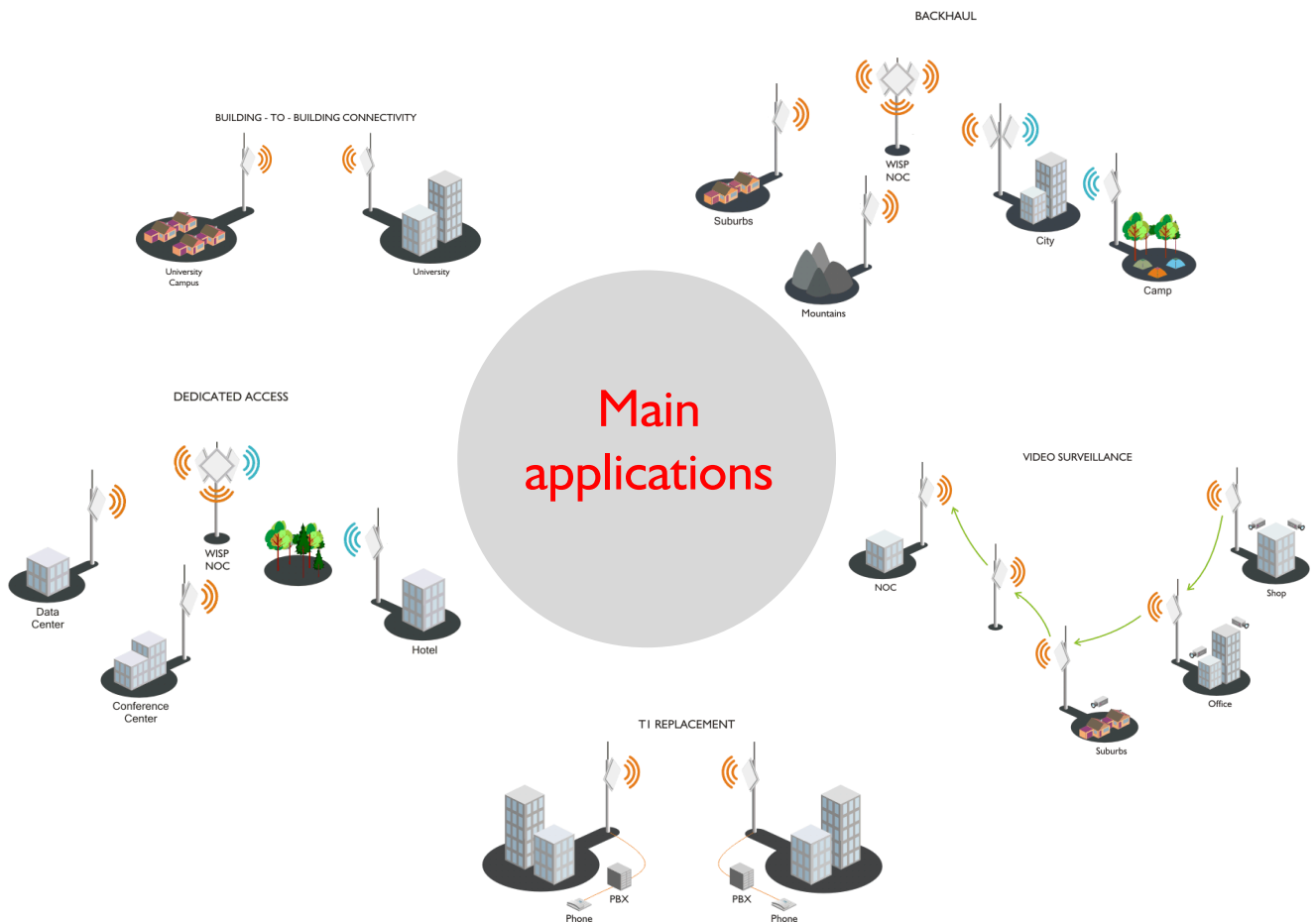


## Key Features

- High, Adjustable TX power 900 MHz PTP solution, ideal for:
  - Dedicated Access Backhaul
- Flexible center channel and channel width capability (5/10/20 MHz) for throughput optimization
- True TCP throughput up to 70 Mbps
- 35,000 packets-per-second (PPS) - ideal for VOIP backhaul applications
- ARQ (Selective Repeat) for very high throughput
- Dynamic TDD for bandwidth optimization
- 13 dBi integrated panel antenna for long distance PTP links or an external N-connector for your own antenna
- PoE built-in for single cable installation
- Advanced security technologies
- Comprehensive management features
  - Web GUI
  - Command line management via SSH
  - RCMS server support for configuration
  - SNMP V1/2/3 with traps supporting MIBs: 802.1, 802.1x, MIBII
  - Syslog support
- Rugged articulating bracket solution for multi-facet mounting



W-jet is LigoWave's proprietary wireless protocol that combines special techniques to achieve great performance and reliability even over long distances. The W-jet protocol is the result of years of development and gives LigoWave PTP products the ability to outperform other products on the market while simultaneously optimizing ROI for the customer.



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## Summary

- Easy and quick planning;
- Free online application and can be used with all wireless equipment;
- Has integration with Google maps;
- Allows storing, downloading and publishing data about the links online.
- PDF results can even be used by installation teams!

LigoWave's link calculator is a link planning tool available online at <http://www.ligowave.com/linkcalc/>. The link calculator allows LigoPTP users to calculate link performance expectations taking into account geographical information, distance between the units, antenna height and gain, transmit power, and other factors in order to choose the most suitable product available from LigoWave's extensive product portfolio. In addition, custom calculations using other vendors' equipment specs can be used, making the LigoWave link calculator the ultimate link planning tool. At the same time, this tool is offered free of charge, and users only need to register to get quick and easy access to this very helpful tool. On top of that, each user is able to save and create a database of links, download a PDF document that contains all the necessary information about the link, and publish a hyperlink online so that it could be shown to other people during the evaluation process.

## Package contents:



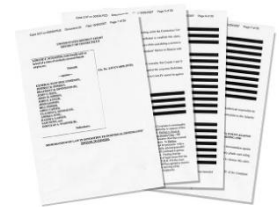
48 V PoE with grounding and lightning protection



LigoPTP 900-13/900-N outdoor unit



Professional mounting kit

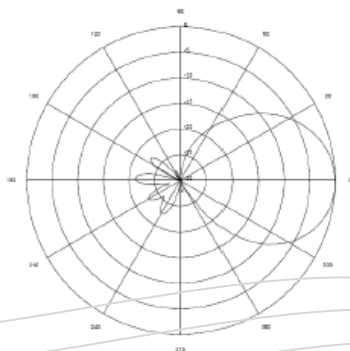


Quick install guide

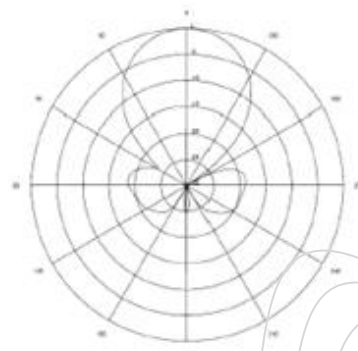
## Antenna patterns (only for LigoPTP 900-13 product):

### RF patterns

#### Vertical



#### Horizontal



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## Radio specifications

Wireless technology	Proprietary W-Jet protocol
Operating mode	Point-to-point
Radio frequency band	868 - 928 MHz
Channel size	Configurable 5, 10, 20 MHz
Max transmit power	25 dBm
Modulation schemes	BPSK, QPSK, 16QAM, 64QAM
Receive sensitivity	Varying between -92 and -72 dBm depending on modulation and channel size
Error correction	FEC, Selective ARQ
Duplexing scheme	Dynamic time division duplex

## Antenna

Type	Integrated directional panel (LigoPTP 900-13) or 1 N-Type connector (LigoPTP 900-N)
Gain	13 dBi (LigoPTP 900-13)
3dB Beamwidth V/H	42/42 degrees (LigoPTP 900-13)

## Data Interface

Physical interface	10/100 BaseT
Protocol	Ethernet IEEE 802.3
Connector type	RJ45
Surge protection	Built-in

## Link performance

Real data (TCP) throughput	40 Mbps aggregate (20 Mbps full-duplex)
Max packets per second	35,000
Packet latency	2 ms (64 bytes packet)
Recommended link distance	Up to 20 km (12.4 mi), LOS

## Security

Data encryption	Hardware based AES
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## Physical

Dimensions (LigoPTP 900-13)	Width 391mm (15.4 "), height 391mm (15.4 "), depth 110mm (4.3 ")
Dimensions (LigoPTP 900-N)	Width 220mm (8.7 "), height 220mm (8.7 "), depth 80mm (3.2 ")
Weight	3.7 kg (8 lb) (mount included)
Power supply	9 - 48 VDC, passive PoE
Power source	100 - 240 VAC via included adapter
Power consumption	12 W

## Environmental

Operating temperature	-20°C (-4 F) - +60°C (+140 F)
Humidity	0 - 90 % (non-condensing)

## Management

System configuration interfaces	User-friendly web GUI, SSH CLI, SNMP v1/2c/3 with traps, centralized Remote Control Management System
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## Regulatory

Certification	FCC
Ingress protection	IP-67
Safety	RoHS compliant