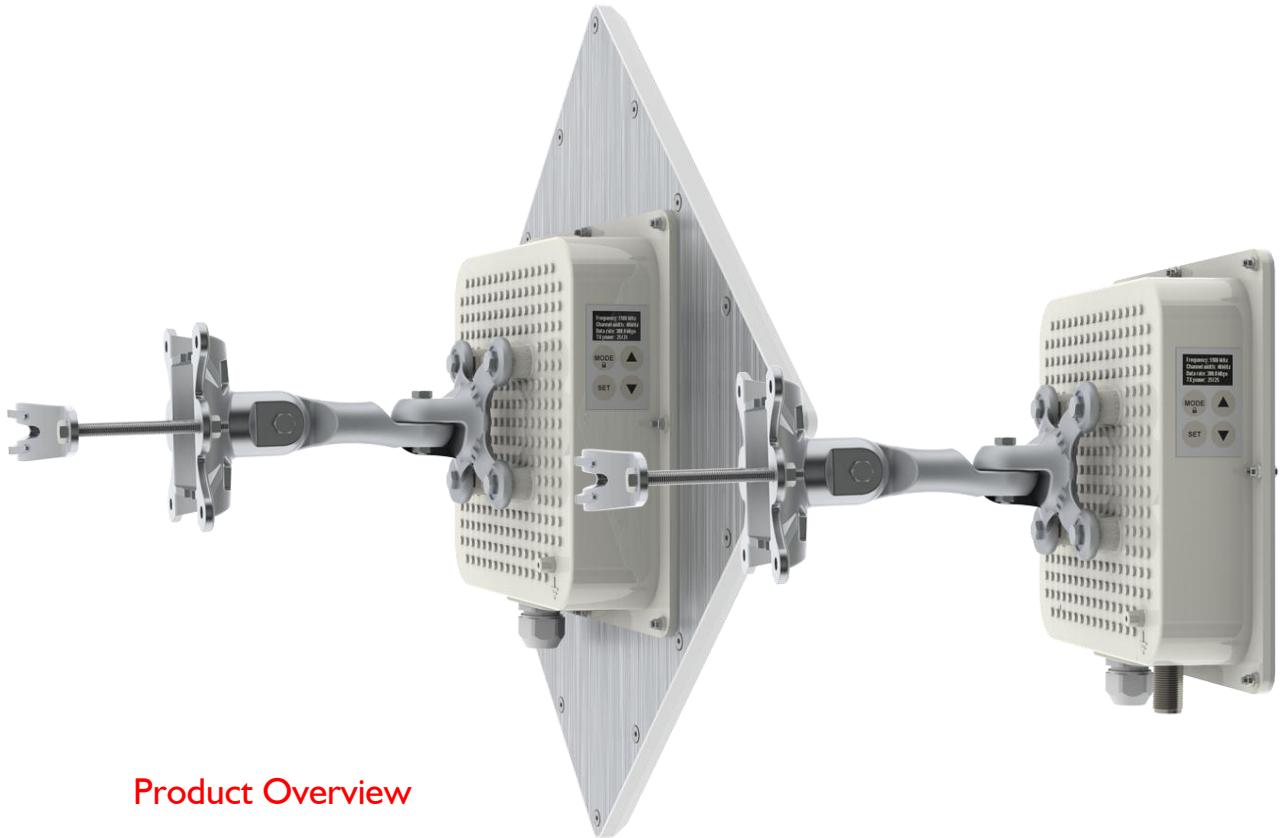


# Ligo PTP 4-19/4-N

4.9 GHz point-to-point integrated/connectorized backhaul device



## Product Overview

LigoWave offers public safety officers a seamless 4.9 GHz point-to-point bridge solution with the release of the LigoPTP 4-19/4-N integrated backhaul device. Designed with mission-critical reliability in mind, the LigoPTP 4-19/4-N delivers true TCP throughput up to 40 Mbps, at a packets-per-second performance of 50,000 PPS.

Even in challenging RF conditions, the LigoPTP 4-19/4-N delivers unparalleled performance by combining robust hardware technologies and unique, industry-leading software mechanisms. The LigoPTP 4-19/4-N product is perfect for public safety applications, delivering wireless dedicated access or backhaul solutions for police and fire departments, search and rescue teams, and other government agencies.

The LigoPTP 4-19/4-N product features an integrated 19 dBi panel antenna, with narrow beamwidth to enable long-range, rock-solid link connectivity.

The LigoPTP 4-19/4-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 reliable, very high throughput over high-bandwidth, long-range links even in the presence of interference.

The LigoPTP 4-19/4-N is also compatible with WNMS, a centralized configuration, firmware, and statistics server offered by LigoWave for carrier class diagnostic and configuration management capabilities.

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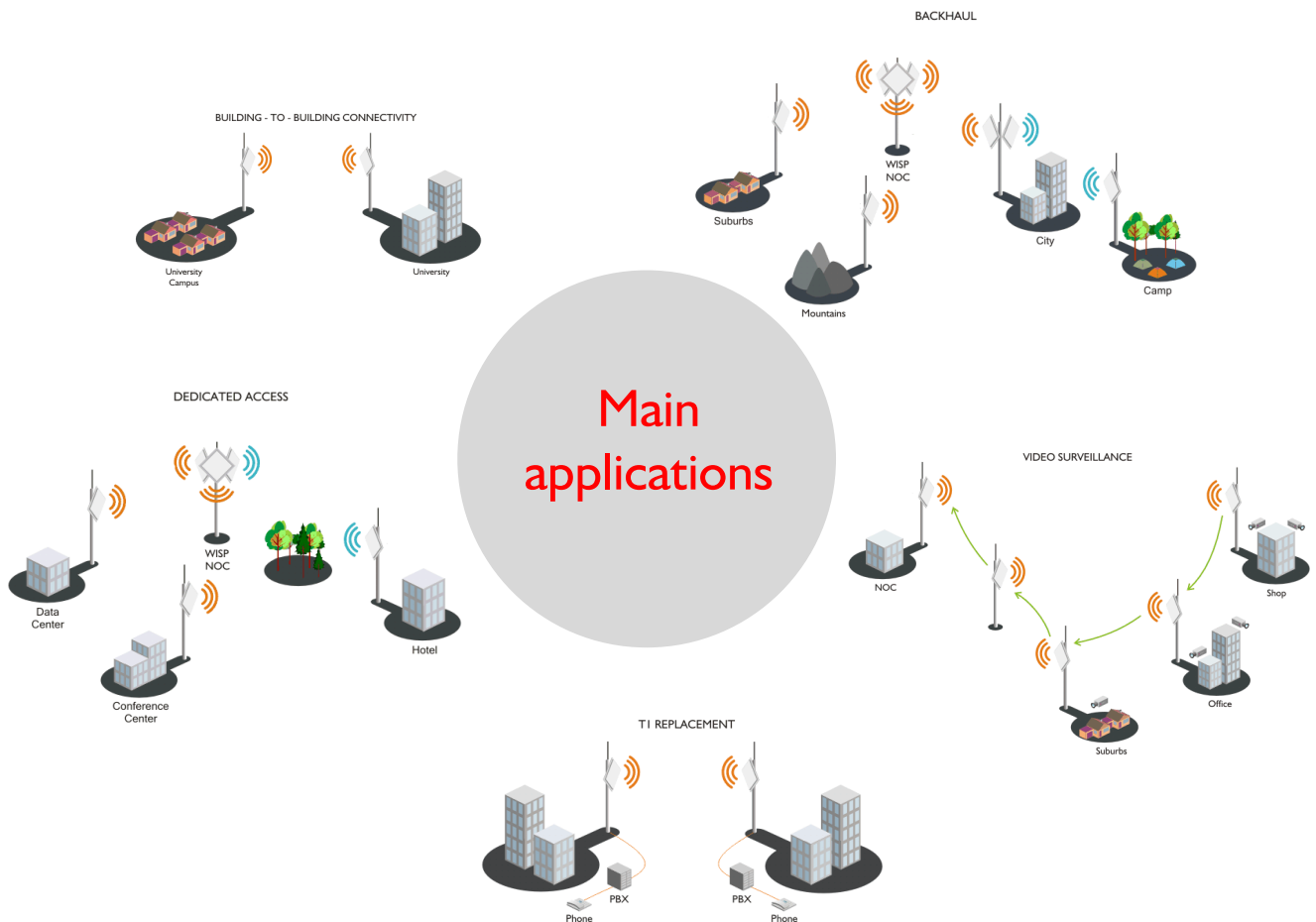


## Key Features

- 4.9 GHz PTP bridge, ideal for mission-critical government applications:
  - Dedicated Access
  - Backhaul
- Flexible center channel and channel width capability (5/10/20/40 MHz) for throughput optimization
- True TCP throughput up to 70 Mbps
- 50,000 packets-per-second (PPS) - ideal for VOIP backhaul applications
- ARQ (Selective Repeat) for very high throughput
- Dynamic TDD for bandwidth optimization
- 19 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
  - WNMS 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:



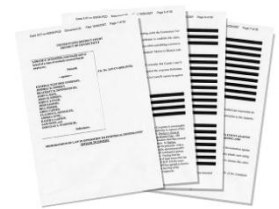
48 V PoE with grounding and lightning protection



LigoPTP 4-19/4-N outdoor unit



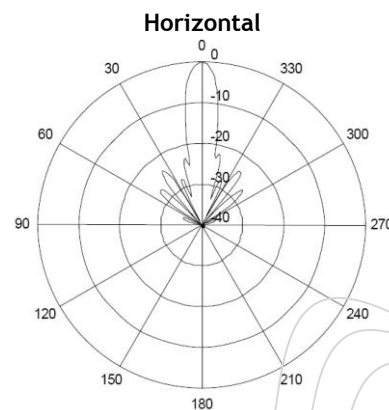
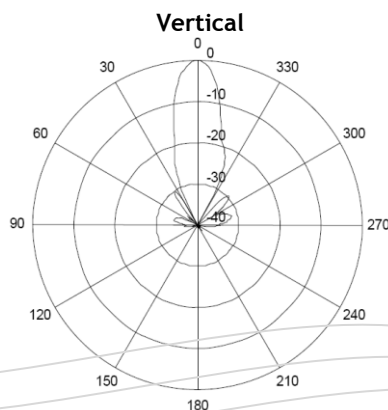
Professional mounting kit



Quick install guide

## Antenna patterns (only for LigoPTP 4-19 product):

### RF patterns



# Ligo PTP 4-19/4-N

4.9 GHz point-to-point integrated/connectorized backhaul device



## Sales offices:

### EMEA:

Veiveriu 150-IIIa. Kaunas,  
LT-46931, Lithuania

Sauletekio al. 15-610, Vilnius,  
LT-20000, Lithuania

### Americas:

138 Mountain Brook Dr.  
Canton, GA 30115, USA

984 Shetland Ave. Winter  
Springs, FL 32708 USA

### Asia Pacific:

**China-Beijing**  
Room 602, Everlast Plaza, No.  
39, Anding Road,  
Chaoyang District, Beijing, China  
100029

**China-Shanghai**  
4H, No. 92, Guiping Road, Zuhui  
District, Shanghai, China 200233

**China-Huizhou**  
No. 6, Huifeng East 2 Road,  
Zhongkai Hi-Tech Industrial  
Development Zone  
Huizhou, Guangdong, China

**China-Shenzhen**  
No. 9, Dragon Jade Industrial  
District, Bantian Village Buji  
Town Longgang District,  
Shenzhen, China

**Hong-Kong**  
B7, 6F., Chung Mei Centre, 15B  
Hing Yip Street,  
Kwun Tong, Kowloon, Hong  
Kong

**Singapore**  
60 Kaki Bukit Place, #08-04/05  
Eunos Tech Park, Singapore  
415979

**Indonesia**  
Gedung Starpage Jl. Salemba  
Tengah No. 5 Lt. 3, Jakarta  
Pusat, Indonesia

**Taiwan**  
12F., No.33 Sec. 2, Roosevelt  
Road, Taipei, Taiwan

**Malaysia**  
No. 17 Jalan P2/12, Bandar  
Teknologi Kajang, 43500  
Semenyih, Selangor, Malaysia

**Philippines**  
3rd Floor. ETPI Bldg. #2161 Soler  
St, Conner Calero St. Sta Cruz,  
Manila City, Philippines

**Thailand**  
169 Soi Sirindhorn 7,  
Charansanitwong Road,  
Bangbamru, Bangplad, Bangkok  
10700, Thailand

**India**  
New No. 6, Old No. 16,  
Rajagopalan Street, Valmiki  
Nagar, Thiruvanimiyur, Chennai  
600041, India

## Radio specifications

Wireless technology	Proprietary W-Jet protocol
Operating mode	Point-to-point
Radio frequency band	4.94 - 4.99 GHz
Channel size	Configurable 5, 10, 20 MHz
Max transmit power	24 dBm
Modulation schemes	BPSK, QPSK, 16QAM, 64QAM
Receive sensitivity	Varying between -92 and -75 dBm depending on modulation and channel size
Error correction	FEC, Selective ARQ
Duplexing scheme	Dynamic time division duplex

## Antenna

Type	Integrated directional panel (LigoPTP 4-19) or 1 N-Type connector (LigoPTP 4-N)
Gain	19 dBi (LigoPTP 4-19)
3dB Beamwidth V/H	10/10 degrees (LigoPTP 4-19)

## 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	50,000
Packet latency	2 ms (64 bytes packet)
Recommended link distance	Up to 25 km (25.5 mi), LOS

## Security

Data encryption	Hardware based AES
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## Physical

Dimensions (LigoPTP 4-19)	Width 335 mm (13 "), height 335 mm (13 "), depth 80 mm (3.2 ")
Dimensions (LigoPTP 4-N)	Width 220 mm (8.7 "), height 220 mm (8.7 "), depth 80 mm (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

Installation assistant	OLED screen
System configuration interfaces	User-friendly web GUI, SSH CLI, SNMP v1/2c/3 with traps, centralized Wireless Network Management System

## Regulatory

Certification	FCC
Ingress protection	IP-67
Safety	RoHS compliant

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