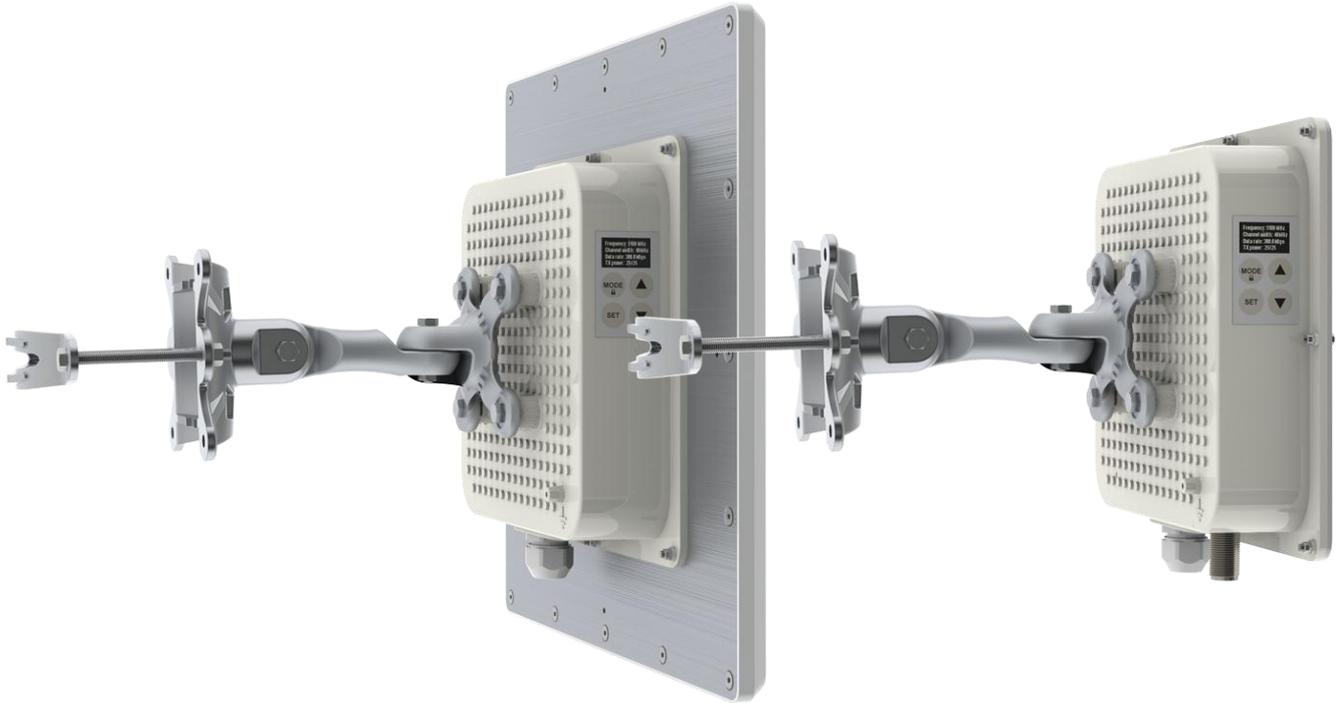


Ligo PTP 2-19/2-N

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



Product Overview

LigoWave delivers the most robust 2.4 GHz PTP solution on the market by coupling ultra-high output power, flexible channel width capability (5/10/20/40 MHz), and industry-leading proprietary software mechanisms.

The LigoPTP 2 Series products offer carrier-class link connectivity, delivering true TCP throughput capability of 70 Mbps and packets-per-second performance of 50,000 PPS. The LigoPTP 2 series products offer an unlicensed PTP solution, ideal for dedicated access or backhaul applications (including VOIP) where other frequencies may be unavailable.

The LigoPTP 2-19/2-N product features an integrated 19 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 2-19/2-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 2-19/2-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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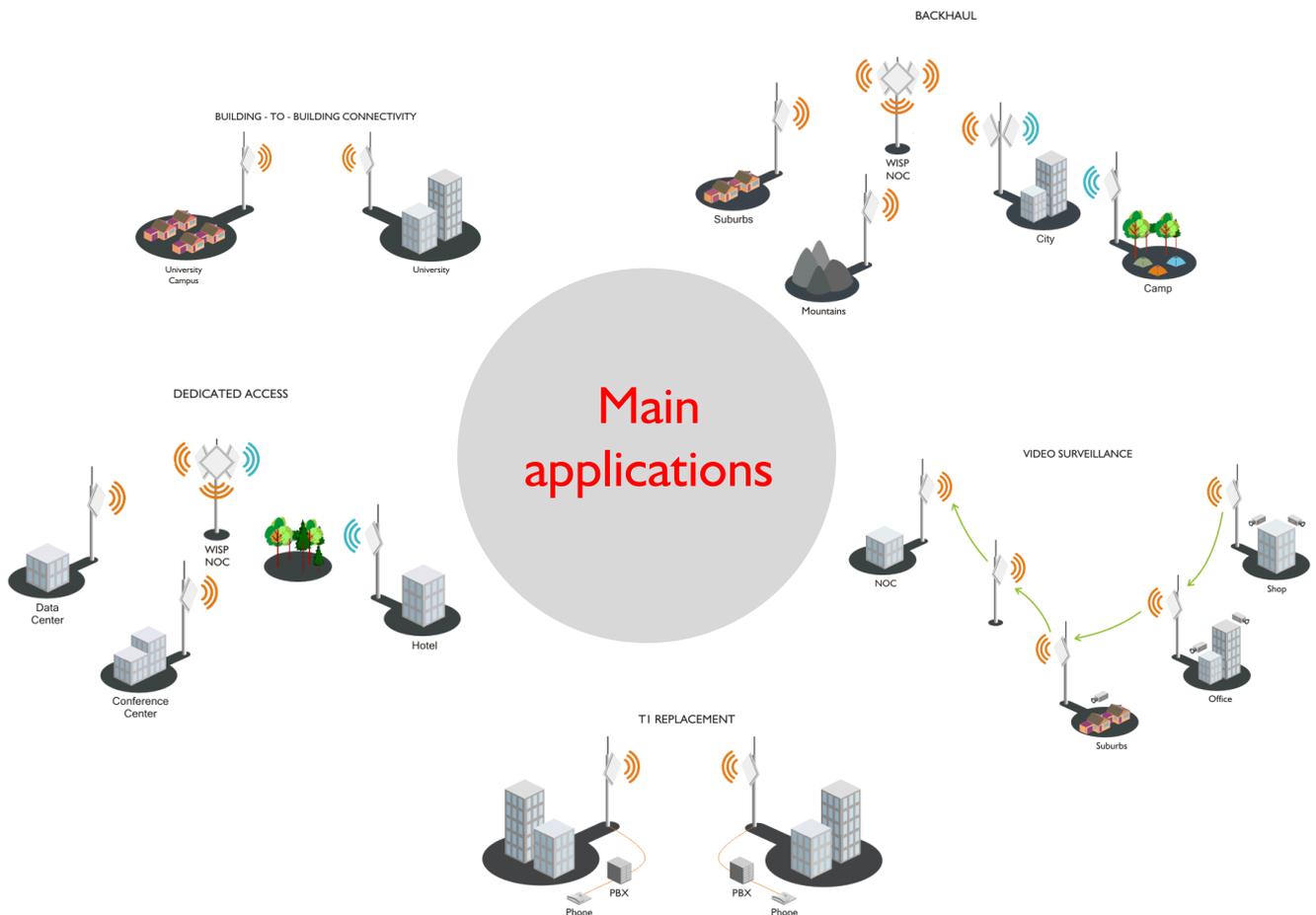


Key Features

- High, Adjustable TX power 2.4 GHz PTP solution, ideal for:
 - 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

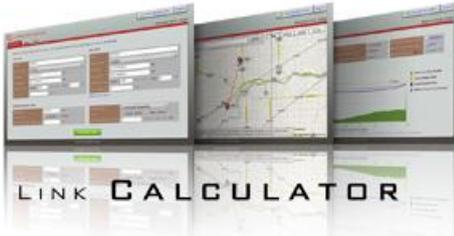


W-jet is LigoWave's proprietary wireless protocol that combines special techniques to achieve great performance and reliability even over long distances. The W-jet protocol is the result of years of development and gives LigoWave PTP products the ability to outperform other products on the market while 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 2-19/2-N outdoor unit



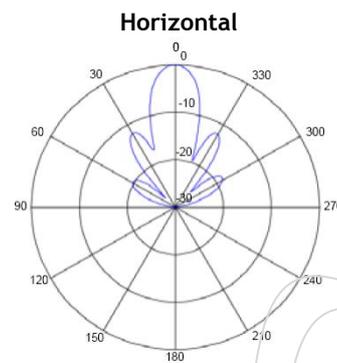
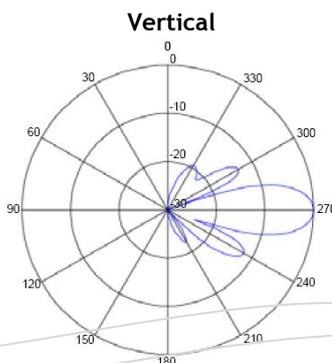
Professional mounting kit



Quick install guide

Antenna patterns (only for LigoPTP 2-19 product):

RF patterns



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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, Thiruvanniyur, Chennai
600041, India

Radio specifications

Wireless technology	Proprietary W-Jet protocol
Operating mode	Point-to-point
Radio frequency band	2.4 - 2.483 GHz
Channel size	Configurable 5, 10, 20, 40 MHz
Max transmit power	24 dBm (Country dependent)
Modulation schemes	BPSK, QPSK, 16QAM, 64QAM
Receive sensitivity	Varying between -92 and -74 dBm depending on modulation and channel size
Error correction	FEC, Selective ARQ
Duplexing scheme	Dynamic time division duplex

Antenna

Type	Integrated directional panel (LigoPTP 2-19) or 1 N-Type connector (LigoPTP 2-N)
Gain	19 dBi (LigoPTP 2-19)
3dB Beamwidth V/H	18/18 degrees (LigoPTP 2-19)

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	70 Mbps aggregate (35 Mbps full-duplex)
Max packets per second	50,000
Packet latency	2 ms (64 bytes packet)
Recommended link distance	Up to 30 km (18.6 mi), LOS

Security

Data encryption	Hardware based AES
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Physical

Dimensions (LigoPTP 2-19)	Width 385 mm (15 "), height 385 mm (15 "), depth 100 mm (3.9 ")
Dimensions (LigoPTP 2-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/CE
Ingress protection	IP-67
Safety	RoHS compliant

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