LigoWave

DLB 5-15n

Outdoor Wireless Device

DLB 5-15n

The DLB 5-15n is a versatile, very efficient, and stable 5 GHz CPE. This product is equipped with an extreme output power (up to 29 dBm) 802.11n MIMO radio wrapped securely inside a robust, well designed and a small form factor enclosure. The robust hardware is coupled with a 15 dBi directional panel antenna; ideal for short to medium range applications.

Smart dynamic polling based protocol (iPoll 3) ensures reliable communication even in congested areas with 64 client devices connected to a base-station.

Equipped with LigoWave's dual firmware image feature, remote software upgrades are assured even if a power failure interrupts the process. The device will restart using the prior firmware in the event of an upgrade failure.

The enclosure is made of polycarbonate plastic with UV inhibitors to provide years of outdoor exposure in direct sunlight without cracking. Tested to meet vibration, temperature, drop, salt, fog, and electrical surge standards to ensure a high level of reliability and backed by a two-year warranty. It is equipped with a grounding lug and a grounded 24-volt PoE to allow a professional installation, resistant to electrical surges.

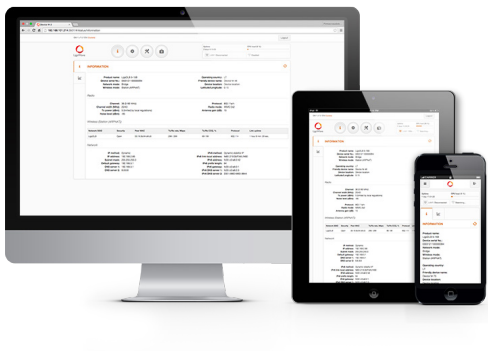
New form factor

The shape of the enclosure is now smaller, lighter but retains the IP-66 weather protection rating. Smaller packaging reduces freight costs and makes them less obvious. The new design has no metal parts, which makes them lighter and corrosion resistant.

OS

The DLB OS is a highly functional and easy to use operating system. This powerful and flexible operating system ensures flawless operation of all DLB hardware devices and effortless setup for those deploying the networks.

- Smart polling data transmission protocol (iPoll 3)
- Dual-firmware image support
- Responsive HTML 5 based GUI
- 170 Mbps capacity
- 80,000 PPS rate
- IPv6 support
- WNMS compatible



INFINITY CONTROLLER

The Infinity Controller is LigoWave's proprietary element management system that facilitates network installation, configuration, control, maintenance, monitoring, and expansion.

The Infinity Controller is designed to work with Infinity (NFT), LigoDLB, and LigoPTP NEs. It offers full functionality with the Infinity series and LigoDLB series, but only supports the monitoring feature on LigoPTP NEs.
The PTP configuration feature is currently undergoing development.

Specifications

Product/ distance recomendation	PTMP mode	PTP mode	PTP mode (full capacity)
DLB 5-15n	5 km/ 3.11 mi	7 km/ 6.21 mi	5 km/ 4.35 mi

Wireless

WLAN standard	IEEE 802.11 a/n, iPoll (proprietary)
Radio mode	MIMO 2x2
Radio frequency band	5.150 - 5.850 GHz (FCC 5.150 - 5.250 and 5.725 - 5.850 GHz)
Transmit power	Up to 29 dBm (country dependent)
Receive sensitivity	Varying between -97 and -75 dBm depending on modulation
Channel size	5,10, 20, 40 MHz
Modulation schemes	802.11 a/n: OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Data rates	802.11 n: 300, 270, 240, 180, 120, 90, 60, 30 Mbps
	802.11 a: 54, 48, 36, 24, 18, 12, 9, 6 Mbps
Error correction	FEC, Selective ARQ
Duplexing scheme	Time division duplex

Receive sensitivity (dBm)	802.11N/ iPoll (20/ 40 MHz)	15 Mbps	30 Mbps	45 Mbps	60 Mbps	90 Mbps	120 Mbps	135 Mbps	150 Mbps
		-97	-95	-93	-88	-85	-81	-79	-77
		30 Mbps	60 Mbps	90 Mbps	120 Mbps	180 Mbps	240 Mbps	270 Mbps	300 Mbps
		-94	-92	-89	-85	-82	-78	-77	-75
	802.11a	6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
		-97	-97	-95	-93	-90	-86	-82	-81
Output power (dBm - combined)	802.11N/ iPoll (20/ 40 MHz)	15 Mbps	30 Mbps	45 Mbps	60 Mbps	90 Mbps	120 Mbps	135 Mbps	150 Mbps
		29	28	28	28	27	27	25	24
		30 Mbps	60 Mbps	90 Mbps	120 Mbps	180 Mbps	240 Mbps	270 Mbps	300 Mbps
		28	28	28	28	26	26	24	23
	802.11a	6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
		29	29	29	29	29	27	26	25

Antenna

Type	Integrated directional panel antenna
Gain	15 dBi

Wired

Interface	10/100 Base-T, RJ45

Software

Wireless operating modes	Access point (auto WDS), access point (iPoll 3), station (WDS, iPoll 3), station (ARP NAT)
Wireless techniques	Smart station polling, smart auto-channel, adaptive auto modulation, automatic transmit power control (ATPC)
Wireless security	WPA/WPA2 personal, WPA/WPA2 enterprise, WACL, user isolation
Wireless QoS	4 queues prioritization on iPoll 3
Network operating modes	Bridge, router iPv4, router IPv6
Network techniques	Routing with and without NAT, VLAN
WAN protocols	Static IP, DHCP client, PPPoE client
Services	DHCP server, SNMP server, NTP client, router advertisement daemon, ping watchdog
Management	HTTP(S) GUI, SSH, SNMP read, Infinity Controller, Telnet
Tools	Site survey, link test, antenna alignment

Physical

Dimensions	Length 150 mm (5.9 ''), width 115 mm (4.5 ''), height 55 mm (2.1 '')
Weight	450 g (16.2 oz)
Mounting	Combination wall / pole mount with quick swap bracket included

Power

Power supply	12 - 24 VDC passive PoE (24 V passive PoE adapter is included in the package)
Power source	100 – 240 VAC
Power consumption (max)	4.5 W

Environmental

Operating temperature	-40°C (-40 F) ~ +65°C (+149 F)
Humidity	0 ~ 90 % (non-condensing)

Management

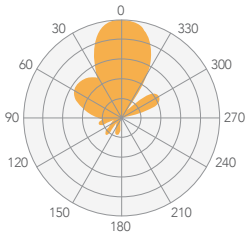
System monitoring	SNMP v3, Syslog, Web UI and Infinity Controller
Configuration:	WebUI, Infinity Controller

Regulatory

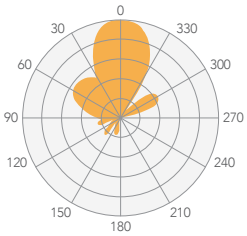
Certification	FCC/IC/CE

Antenna specifications

V Pol

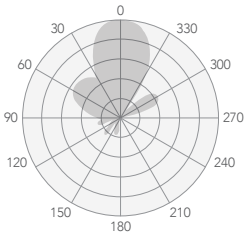


Azimuth

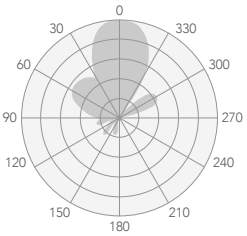


Elevation

H Pol



Azimuth



Elevation

Internal antenna

Frequency range	5.1 - 5.9 GHz
Gain	15 dBi
Polarization	Dual linear
Cross-pol Isolation	27 dBi
VSWR	<1.4
Azimuth beamwidth (H pol)	35 deg
Azimuth beamwidth (V pol)	35 deg
Elevation beamwidth	35 deg