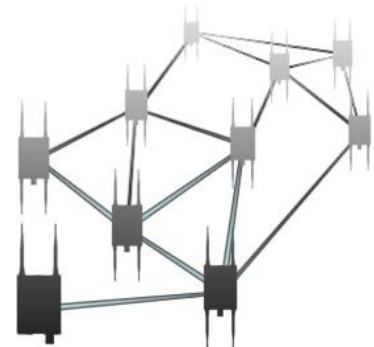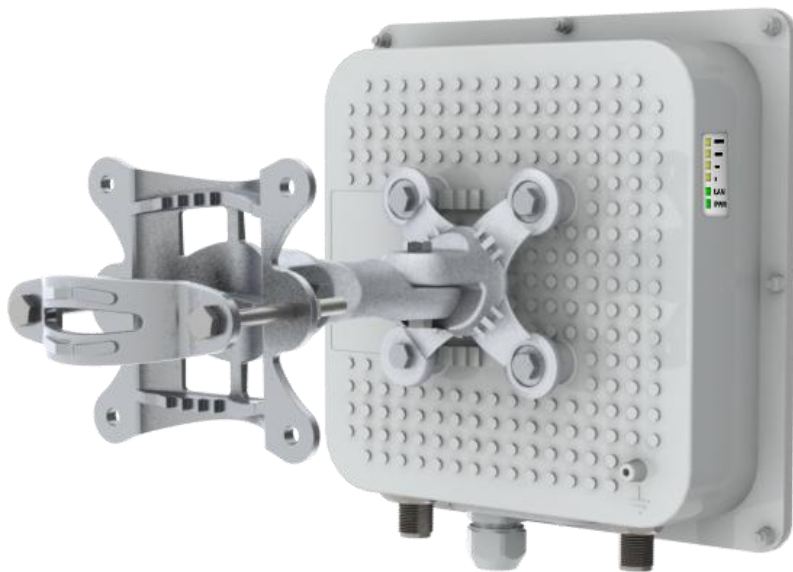# Ligo Mesh Duo

2.4/5 GHz connectorized mesh gateway

Product Overview

The LigoMesh Duo is a carrier-class Mesh device, capable of operating in high bandwidth demand, client-intensive environments. This robust product features two high-powered, Atheros-based mini-PCI radios that are each output power-adjustable and user-selectable between the 2.4 GHz and 5.8 GHz bands.

The two-radio design is ideally suited for use in Mesh Node/Gateway applications - one radio dedicated for meshing to an auto negotiated Mesh Node (creating a self-forming, self-healing network architecture) while the other radio is dedicated for service set broadcasting. As a gateway, the LigoMesh Duo provides WiFi connectivity while acting as a wired network connection for terminal network devices.

The LigoMesh Duo features a powerful 266 MHz processing board, capable of maintaining seamless Mesh WiFi operation in even the most bandwidth-intensive applications.

The LigoMesh Duo features two N-Connectors for custom antenna application, and comes encased in a rugged cast aluminum enclosure.

The LigoMesh Duo features the customized LigoMesh software suite —a powerful core OS offering an abundance of flexibility, stability, and management features that are not present in other Mesh products on the market today.

LigoWave's proprietary Mesh technology is a unique, layer-2 based algorithm, thereby minimizing latency and throughput loss per node and maximizing bandwidth efficiency. This robust software platform accompanied by an array of industry-leading hardware features makes the LigoMesh Duo a universal, customized radio solution for any Mesh application.

Ligo Mesh Duo

## 2.4/5 GHz connectorized mesh gateway

LigoWave

Key Features

- High output power radios (up to 250 mW—adjustable)
- Self-forming, self-healing network architecture
- Unique, layer-2 Mesh Topology – maximizes network efficiency
- Full, half, and quarter bandwidth channels
- Multi-BSSID support (VSSID) with VLAN tags
- PoE built-in for single cable installation
- Rugged cast aluminum enclosure
- Configurable Multi-mode Operation
  - Mesh Node/Gateway (802.11a + 802.11b/g)
- Captive Portal (hotspot) Configurable
- Latest security technologies

- Comprehensive software features
  - IP routing
  - DHCP client/server/relay
  - DNS relay/proxy
  - Stateful inspection firewall
  - MAC/IP filtering
  - Digital device certificates
- 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

LigoMESH Utilities

LigoScout
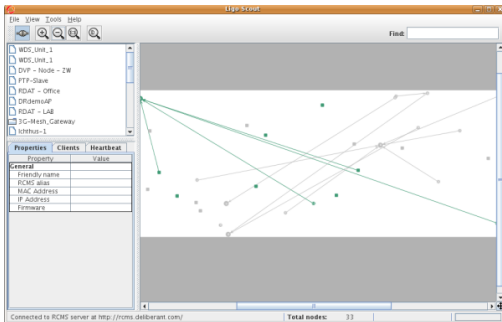
  Integral to the LigoMesh product line, LigoScout provides a graphical representation of the Mesh network topology and status. LigoScout is integrated into RCMS and can be used as a standalone application.

LigoScout features:

• View of mesh network topology
• Ability to search mesh elements by MAC, IP or device name
• Capability of operating as a standalone application, without the existing RCMS server
• Ability to filter by part of the IP address, by Service Set, by part of the Firmware (includes
ability to filter by hardware type), active nodes (inactive/offline nodes are hidden),
• Bird's eye view/navigation - ability to view all network at once
• Discovery tool - allows discovery of mesh devices within reach of a single multicast packet.

RCMS

LigoWave Remote Configuration Management System (RCMS) is a centralized monitoring and management solution for LigoWave wireless networking equipment. At the heart of RCMS there is a
powerful and efficient engine that securely gathers, interprets and records information from registered network devices, and makes that information available to network administrators through a convenient, secure, and attractive Web interface. However, as the name implies, the most important feature of RCMS is configuration management. RCMS can retrieve and/or store configuration files from/to LigoMesh devices (that are online and connected to the server) at any time, turning management of large groups of devices from an administrative nightmare into a single click operation.

Main RCMS features:

- Continuous monitoring of device connectivity
- Wireless device configuration monitoring:
  - changes in device configuration
- Wireless device configuration management:
  - download current configuration from devices
  - upload complete or partial configuration to devices
- Wireless device firmware updating
- Automatic device registration and provisioning
- Multiuser environment with configurable access control
- Secure HTTPS based client-server communication and client.

To learn more about LigoWave products, visit www.ligowave.com.

Ligo Mesh Duo

2.4/5 GHz connectorized mesh gateway

LigoWave

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Radio specifications

Wireless technology	IEEE 802.11a, IEEE 802.11b, IEEE 802.11g
Operating mode	Proprietary layer-2 Mesh Gateway/Node
Radio frequency band	2.4 – 2.497 GHz (Country dependant)
	4.9 – 5.85 GHz (Country dependant)
Channel size	Configurable 5, 10, 20 MHz
Max transmit power	24 dBm
Modulation schemes	CCK, DQPSK, DBPSK, BPSK, QPSK, 16QAM, 64QAM
Receive sensitivity	802.11a: -93 +/- 2dBm @ 6Mbps, -74 +/- 2dBm @ 54 MBps
	802.11b: -99 +/- 2dBm @ 1Mbps, -90 +/- 2dBm @ 11 MBps
	802.11g: -93 +/- 2dBm @ 6Mbps, -75 +/- 2dBm @ 54 MBps
Error correction	FEC
Duplexing scheme	Time division duplex

Antenna

Type	2 N-type connectors
	2 dual-band outdoor omni-directional antennas are included
Gain	5 dBi

Data Interface

Physical interface	10/100 BaseT
Protocol	Ethernet IEEE 802.3
Connector type	RJ45
Surge protection	Built-in
VLAN	IEEE 802.1q

System performance

Real data (TCP) throughput	50 Mbps aggregate
Packet latency	3 ms (64 bytes packet)
Typical coverage radius	300 m (328 yd) (can be increased with additional antennas)

Security

Data encryption	Hardware based AES
WPA2 personal	Supported
WPA2 enterprise	Supported

Physical

Dimensions	Width 228 mm (9 ”), height 165 mm (6.5 ”), depth 51 mm (2 ”)
Weight	2 kg (4.4 lb)
Power supply	9 – 48 VDC, passive PoE
Power source	100 – 240 VAC via included adapter
Power consumption	15 W

Environmental

Operating temperature	-30˚C (-22 F) ~ +60˚C (+140 F)
Humidity	10 ~ 90 % (non-condensing)

Management

System configuration interfaces	Web GUI, SSH CLI, SNMP v1/2c/3 with traps, centralized Remote Contol Management System

Regulatory

Certification	FCC/CE
Ingress protection	IP-67
Safety	RoHS compliant

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