



LigoWave

LigoPTP 6-N RapidFire installation



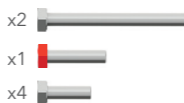
Package contents



802.3af PoE injector



M8 bolts (7 pc.)



Mounting bracket (3 pc.)



AC/DC power adapter



Hardware overview



N connectors

LEDs

Multifunction button

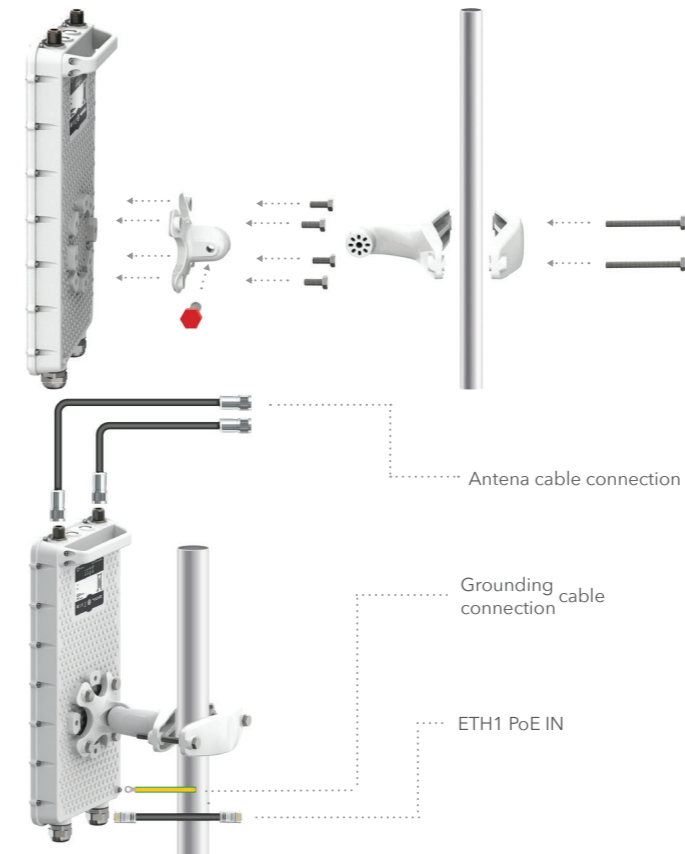
Mounting bracket

Grounding stud

ETH1 PoE IN

ETH2 PoE OUT

LigoPTP 6-N RapidFire installation



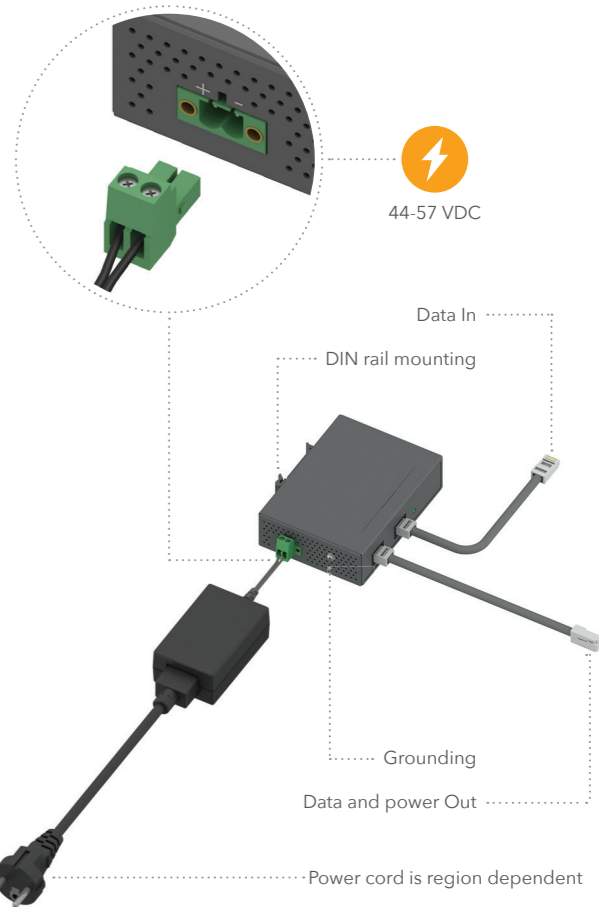
Antenna cable connection

Grounding cable connection

ETH1 PoE IN

IMPORTANT: make sure antennas are connected before powering up the device to avoid possible damage.

PoE connection



44-57 VDC

Data In

DIN rail mounting


Grounding

Data and power Out

Power cord is region dependent

Multifunction button

The Multifunction button, located on the back panel of the LigoPTP RapidFire 6-N (refer to the Hardware overview picture) is able to perform following functions:

	Activate LED indication	Click
	Switch to RSSI or Status indication	Click
	Enable WiFi management radio	Hold until 3 Blue LEDs are on
	Reset device to factory defaults	Hold until all Blue LEDs start to blink

LEDs

The LigoPTP 6-N RapidFire has 6 LEDs located on the back panel, which can indicate either main device operation status or RSSI level.

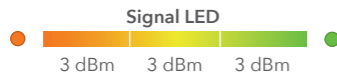
After the LigoPTP 6-N RapidFire is powered up, the LEDs display status indications.



RSSI Signal level (antenna alignment) indication

Click once the multifunction button to switch LEDs for displaying RSSI level.

Each RSSI Signal LED changes color depending on the LigoPTP link's signal strength from the lowest (amber) to the highest (green):



The stronger signal of the LigoPTP link is, more LEDs are on:

	≤ -89 dBm (too low)
	● -88 to -86 (dBm) ● -85 to -83 (dBm) ● -82 to -80 (dBm)
	● -79 to -77 (dBm) ● -76 to -74 (dBm) ● -73 to -71 (dBm)
	● -70 to -68 (dBm) ● -67 to -65 (dBm) ● -64 to -62 (dBm)
	● -61 to -59 (dBm) ● -58 to -56 (dBm) ● -55 to -53 (dBm)
	● -52 to -50 (dBm) ● -49 to -47 (dBm) ● -46 to -44 (dBm)
	● -43 to -41 (dBm) ● -40 to -38 (dBm) ● -37 to -35 (dBm)
	≥ -34 dBm (too high)

Connection options

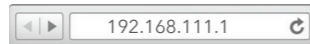
Remote wireless access

This is the easiest way to access the web management interface of the newly installed LigoPTP RapidFire device.

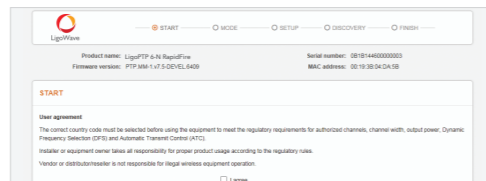
- Power off and power on again the LigoPTP RapidFire unit to switch it to a remote wireless management mode. The mode will be switched off automatically in 10 minutes of wireless inactivity.
- Scan for the wireless devices using your phone/tablet and choose the LigoPTP RapidFire wireless network name, which is LigoWave-mng-AABBCC (where AABBCC are the last three bytes of the particular RapidFire MAC address)



- Launch the browser application and type the default LigoPTP RapidFire IP address 192.168.111.1 in the address field.



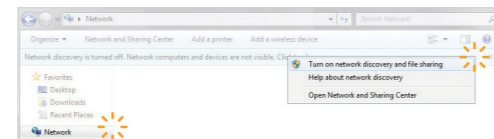
- The setup wizard screen appears, the LigoPTP RapidFire is now ready for configuration.



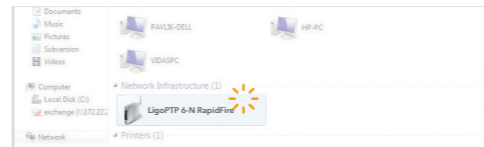
Ethernet access

By default LigoPTP RapidFire obtains the IP address from the DHCP server thus follow the steps to access device using Windows OS (for information how to access via other OS, refer to <http://www.ligowave.com/wiki/faq/>):

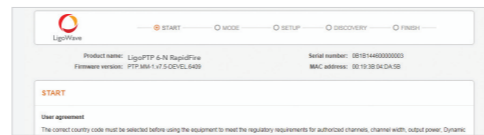
- Connect your PC to the LigoPTP RapidFire via Ethernet.
- Open Windows Explorer, click on Network drive, and turn on Network discovery:



- Find the required LigoPTP RapidFire icon:



- Double-click on LigoPTP RapidFire icon - you will be redirected to the LigoPTP RapidFire webpage. The LigoPTP RapidFire is now ready for configuration:



If the LigoPTP RapidFire is unable to obtain IP address from a DHCP server, it fallback to the default static IP 192.168.2.66.

Important information

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This device requires a professional installation.

Please refer to the "0.9m5GHz dual polarization(N-type)

professional installation instructions" for specific

installation steps.

Antenna Type	External Antenna
Max. Tx power (dBm)	Up to 30 dBm (country dependent)
Max. EIRP (dBm)	Connected antenna gain dependent
Supported frequencies range	5.900-6.400 GHz
Power supply	PoE 802.3at, isolated 42 - 57 VDC
Power consumption (max)	8.6W



Contact information

Technical support
If you encounter problems when installing or using this product, please consult the LigoWave website at www.LigoWave.com for:

- Direct contact to the LigoWave support centers.
- Frequently Asked Questions (FAQ).
- Download area for the latest software, user documentation and product updates.

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Manufacturer:
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UnitD, 16/F., MG Tower,
133 Hoi Bun Road,
Kwun Tong,
Kowloon,
Hong Kong



FCC Warning:

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID:2AR4D-27016G", when the module is installed inside another device, the user manual of

this device must contain below warning statements;

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help.

This modular complies with FCC RF radiation exposure limits for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 400 cm between the radiator and user body.

The device outdoor use only for 5935MHz–6390MHz.

And antenna request need to follow Part 101.115 of the FCC antenna standard Rules as below picture

(2) With the minimum radiation suppression to angle requirement.

ANTENNA STANDARDS

Frequency (MHz)	Category	Maximum beamwidth to 3 dB points ¹ (included angle in degrees)	Minimum antenna gain (dbi)	Minimum radiation suppression to angle in degrees from centerline of main beam in decibels							
				5° to 10°	10° to 15°	15° to 20°	20° to 30°	30° to 100°	100° to 140°	140° to 180°	
932.5 to 935	A	14.0	n/a	n/a	6	11	14	17	20	24	
	B	20.0	n/a	n/a	6	10	13	15	20		
941.5 to 944	A	14.0	n/a	n/a	6	11	14	17	20	24	
	B	20.0	n/a	n/a	6	10	13	15	20		
952 to 960 ^{2,3}	A	14.0	n/a	n/a	6	11	14	17	20	24	
	B	20.0	n/a	n/a	6	10	13	15	20		
1,850 to 2,500 ⁴	A	5.0	n/a	12	18	22	25	29	33	39	
	B	8.0	n/a	5	18	20	20	25	28	36	
3,700 to 4,200	A	2.7	36	23	29	33	36	42	55	55	
	B	2.7	36	20	24	28	32	32	32	32	
5,925 to 6,425 ⁵	A	2.2	38	25	29	33	36	42	55	55	
	B1	2.2	38	21	25	29	32	35	39	45	
	B2	4.1	32	15	20	23	28	29	60	60	
6,525 to 6,875 ⁵	A	2.2	38	25	29	33	36	42	55	55	
	B1	2.2	38	21	25	29	32	35	39	45	
	B2	4.1	32	15	20	23	28	29	60	60	