



QUICK START GUIDE



INDUSTRIAL OUTDOOR HIGH THROUGHPUT 802.11A/N WIRELESS ETHERNET

**This manual serves the following
ComNet Model Numbers:**

NW10

Thank you for purchasing NetWave® from ComNet. This quick start guide is designed to walk you through installation.

This guide applies to the following models:

NW10: Industrial Multipoint, FCC Version, User Configurable

An easy to read LED array displays unit operational status along with received signal strength ensuring optimal installation and operation. See **Figure 2** on **Page 2** for LED Indicator explanations.

See **Figures 3** through **5** beginning on **Page 3** for mounting instructions.

FIGURE 1 - INDUSTRIAL HIGHTHROUGHPUT WIRELESS ETHERNET LINK



PORT 1 - POE IN PORT 2 - POE OUT
FRONT



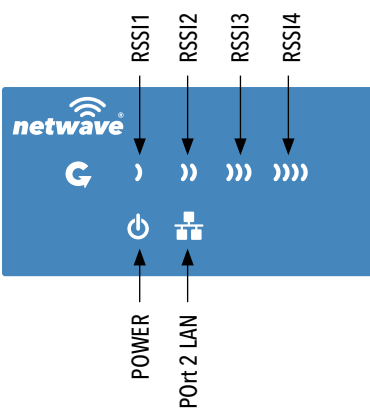
PORT 2 - POE OUT PORT 1 - POE IN
BACK



BOTTOM

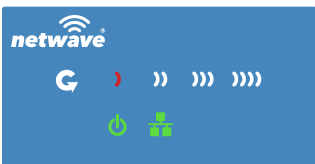
IMPORTANT: Only plug PoE power to Port 1.
Connecting a PoE power source to the PSE Port (#2) will cause a major device malfunction and void the warranty.

FIGURE 2 - STATUS INDICATING LEDS

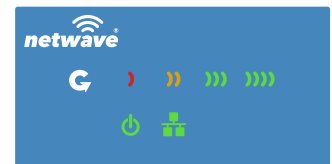
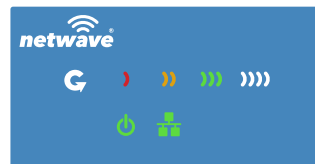
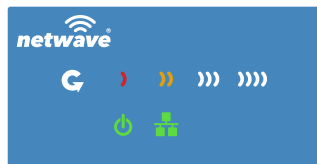


LED	VISUAL CUE	INDICATION
POWER	SOLID GREEN	Power is supplied to the unit
	OFF	No power is supplied to the unit, or the unit is in reset.
LAN	SOLID GREEN	LAN Connected
	OFF	No Connectivity
RSSI1	SOLID RED	Weak Connection
RSSI2	SOLID ORANGE	Moderate Connection
RSSI3	SOLID GREEN	Solid Connection
RSSI4	SOLID GREEN	Excellent Connection (Advisable to check Status Page to confirm RSSI is > -55)

SIGNAL STRENGTH:



WEAK SIGNAL

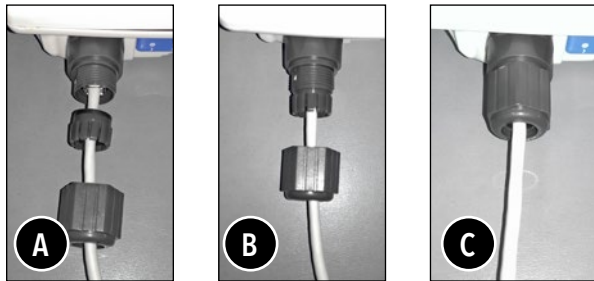
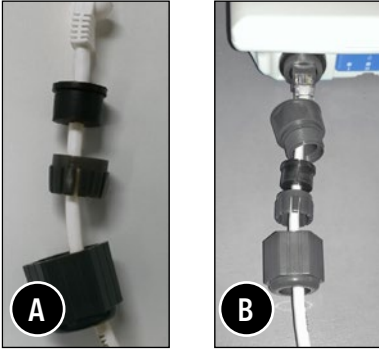


EXCELLENT SIGNAL

FIGURE 3 - INSTALLATION INSTRUCTIONS

Step 1.

Unpack the mounting hardware from the box. Determine if this will be a pole or wall mount application. The included Mounting kit is designed to support poles up to 2 in (5.8 cm) in diameter. If surface or wall mounting, the optional NWBKT hardware will be required.



Step 2.

- A. Route the RJ45 connectorized Ethernet cable through the weather tight gland connection as shown at left.
Note: The slit rubber washer allows a pre-terminated Ethernet cable to be used.
Once the cable has been routed through the weather connection as shown above, push the split rubber gasket into place and loosely screw the cap that goes over the rubber washer.
- B. Snap the RJ-45 connector in place as shown

Step 3.

Slide the weather proof assembly over the cable so it can be screwed into the enclosure gland. Make sure the rubber sealing ring is in place as shown in step 3A.

Tighten the weather proof assembly into the enclosure and also tighten the cap that squeezes the rubber washer over the Ethernet cable as shown.

Step 4.

- A. Connect one end of an RJ-45 Ethernet cable to the OUT port of the CNGE11PS or other 35W PoE Injector (sold separately) and the other end to LAN of the access point.

Maximum length of the RJ-45 CAT5 cable is 100 meters.*
- B. Connect the RJ-45 Ethernet cable attached to the PoE Injector to a network device, such as to a switch or to the PC you will use to configure the access point.
- C. Connect the power adaptor to the main electrical supply and the power plug into the socket of the PoE Injector .

PoE power input: Passive PoE (range 36 to 48 VDC). The NW10[E] can also be powered by a suitable IEEE 802.3af/at PSE device such as a PoE switch or injector.
- D. A Drip Loop is recommended as additional precaution against moisture entering the Access Point housing.

* Up to 200mW radio. For higher power radio upgrade to higher rating power adapter.

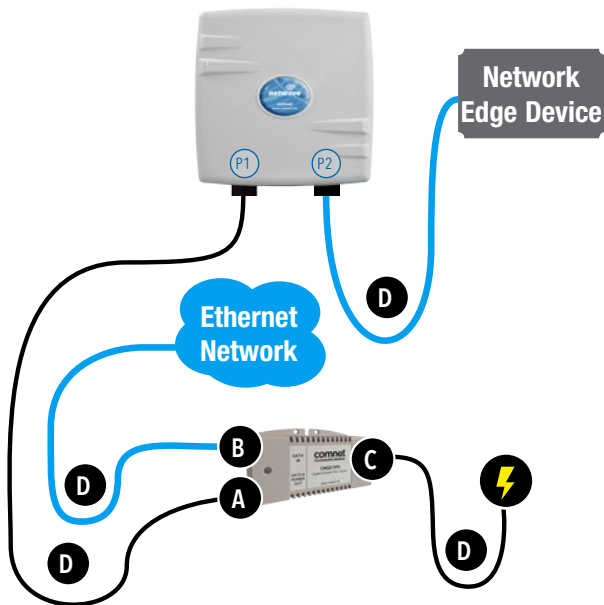


FIGURE 4 - POLE MOUNT INSTRUCTIONS

Included Hardware



Vertical Mount in -45° Position



Vertical Mount in +45° Position



INSTALLATION REQUIREMENTS

Shielded outdoor CAT 5 or better should be used for all out of plant Ethernet connection and should be properly grounded through the PoE AC ground. Industrial grade shielded Ethernet cable is recommended to help prevent ESD damage commonly experienced with outdoor installations. Visit www.comnet.net/comnet-products/cables

CONFIGURING NETWAVE

1. Connect an Ethernet cable from the port labelled as IN on the power Injection Module to either a laptop or a PC LAN port.
2. Connect the second Ethernet cable from the OUT port on the Power Injection Module to the NetWave LAN port.
3. Apply DC to the Power Injection Module with the provided power supply. You should notice the green LED illuminate in the Power Injection Module and the power LED on the NetWave unit.
4. Set the IP address of the laptop being used to configure NetWave to static and the subnet to 192.168.10.x/24 subnet.
5. Point the browser to 192.168.10.101. This is the default address.

6. A login prompt will pop up. Enter:

ID: **admin**
 Password: **admin**

7. Select the NETWORK » Interfaces tab, click on Edit in the LAN settings section to change the IP address of the device. and set the desired network settings.

- Hit Save & Apply

NOTE: This will be the network address for the NetWave web server. It is not necessary to set to the same subnet as the operating network but it is recommended.

8. Select the NETWORK -> WIFI tab and set:

- Wireless mode - Set to AP or Client

NOTE: It is the user’s responsibility to ensure that the correct country is chosen. ComNet accepts no liability for incorrectly set up equipment.

- Output RF power - if RSSI is greater than -40, it is recommended to reduce RF TX power at the connected remote node.
- Set SSID - if changing from the default setting
- Channel Spectrum Width - May want to reduce to 20M from the default 20/40M if the 5GHz spectrum is crowded or connections across the link are unstable.
- Wireless Security - if changing from default settings
- Hit Save & Apply

DEFAULT CONFIGURATIONS

IP Address of Web Server	192.168.10.101
LAN Mode for Web Server	Static Addressing
Web Server User ID	admin
Web Server Password	admin
SSID	Netwave-1
WPA Pre-shared Key	12345678
Channel-Frequency (AP)	Auto
Channel Spectrum Width	20/40M
Long Range Parameters	Enabled and defaulted to 1000m

NOTE: A Reset to defaults (performed on the ADMIN page or via the RESET button) will erase all user configurations.

CONFIGURING MAC LOCK FOR POINT TO POINT LINKS

MAC-Filter replaces MAC-Lock on the first generation Netwave hardware.

MAC-Filter is only available on devices operating as an AP. By default, it is disabled.

You can locate MAC-Filter tab by going to Networking -> WIFI -> Enable.



To enable and lock to a client radio, Click on the drop down menu and select "Allow Listed Only".

A new dialog box will appear. Click on the new dialog box and click on customer, enter the MAC address of the client radio you would like to MAC lock to and hit "Save & Apply".



UNDERSTANDING RSSI AND SIGNAL STRENGTH

The Received Signal Strength Indicator (RSSI) is intended to be used as an indicator of the quality of connection that exists between an Access Point and Client radio.

The RSSI value is determined by the Signal Strength.

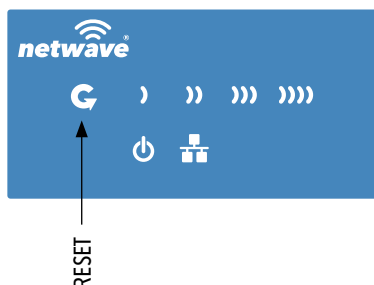
Signal Strength is based on a number of factors, including the output power of the radios, antenna gain and the attenuation of the signal as it travels from the transmitter to the receiver.

Signal strength is expressed in dBm. dBm is a power ratio in decibels (dB) referenced to 1mW. Since most received signal levels are under 1mW, negative values are typically displayed. The more negative the number, the weaker the received signal.

The following can be used as a guideline to determine signal quality

RSSI	Signal Quality
Less than -75 to -95 dBm	No Signal or intermittent operation
-75 dBm and greater	Moderate Connection
-65 dBm and greater	Solid Connection
-55 to Zero dBm	Excellent Connection

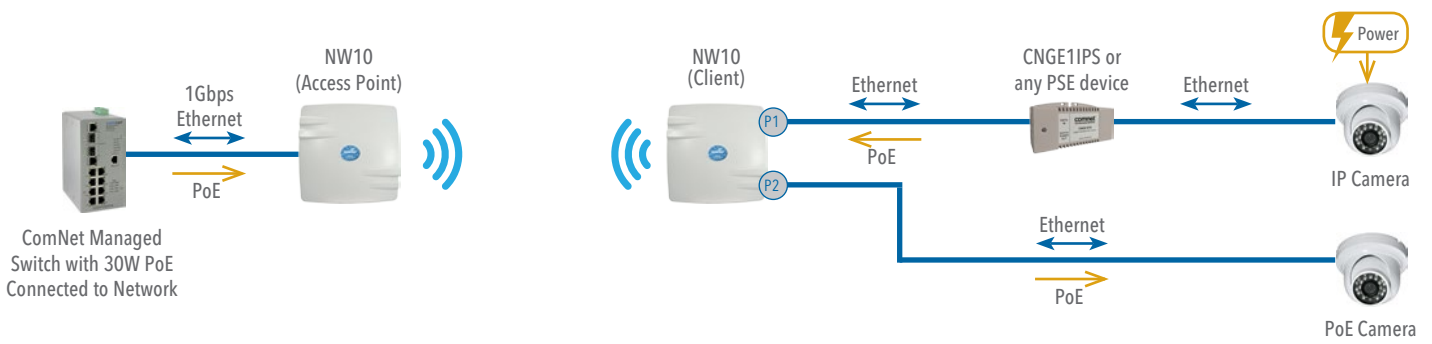
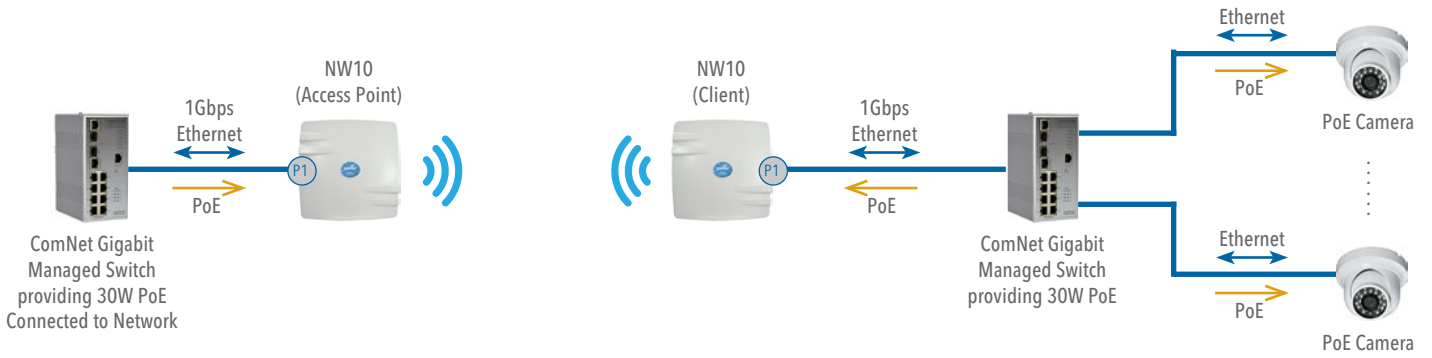
RESET TO FACTORY DEFAULT



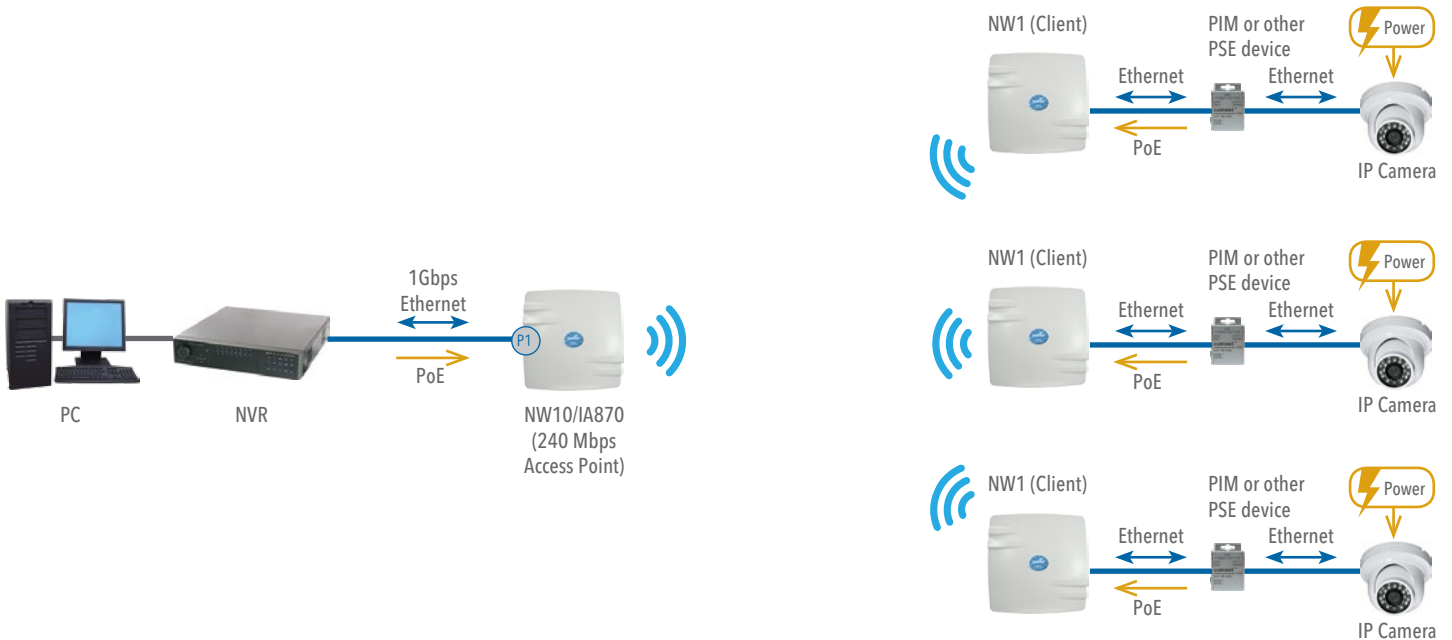
Press and hold the reset button for 4-30 Seconds to reset the radio back to factory defaults.

Note: A simple press of the reset button will restart the radio. Holding the reset button for longer than 30 seconds will not do anything.

Whenever the reset button is pressed, the power LED will go dark.



NOTE: NW10 nodes will need to have the Wireless Mode set to either AP or Client (default is Client). And the IP addresses will need to be all set to different addresses (default address is 192.168.10.101). Once this is done, all the clients will connect to the multipoint AP with all other settings kept at default.



AGENCY COMPLIANCE

FCC

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

FCC statement

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.

The device operates in 4.940-4.990GHz / 5.15 ~ 5.25GHz / 5.725 ~ 5.850 GHz frequency range. This device meets all the other requirements specified in Part 90 of the FCC Rules.

RF exposure warning:

The device complies with the requirements of FCC RF Exposure. This equipment should be installed and operated with minimum distance 100cm between the radiator & your body.

NOTE: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Need Additional Assistance?

Visit our website <http://www.comnet.net> or contact Comnet tech support:

Tel: (203) 796-5300

Toll free: (888) 678-9427

Email: techsupport@comnet.net

Additional Technical support contact details can be found at:

<http://www.comnet.net/services/technical-support.html>

Or Visit our pre-sales design center:

<http://www.comnet.net/services/design-center.html>

Or our customer care:

<http://www.comnet.net/services/customer-care.html>

Additional Downloads

Datasheets, Installation manuals and other product documentation can be found at:

<http://www.comnet.net/comnet-products/ethernet/wireless/>



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