

SECLink-mkIII

PRE-CONFIGURED PRODUCTS

QUICK START GUIDE



INDUSTRIAL OUTDOOR HIGH THROUGHPUT 802.11A/N WIRELESS ETHERNET / WIRELESS ETHERNET KIT



This manual serves the following
ComNet Model Numbers:

NW7

NW7E

NWK7

NWK7E

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

This guide applies to the following models:

NW7: Industrial Multipoint, FCC Version,

NW7E: Industrial Multipoint, ETSI Version,

NWK7: Industrial Multipoint, FCC Version,
(Includes NWK7_AP and NWK7_CL)

NWK7E: Industrial Multipoint, ETSI Version,
(Includes NWK7E_AP and NWK7E_CL)

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

See **Figures 3 and 4** for mounting instructions

COMNET NETWAVE – VICON NORWAY SEClink-mkIII Features / Datasheet

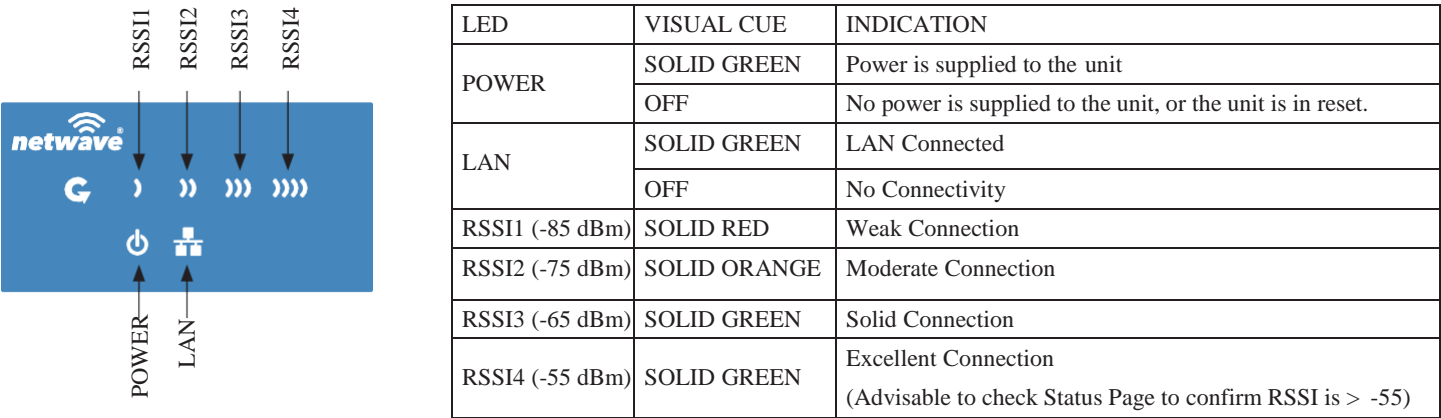
The Netwave NW7E is an environmentally hardened High Throughput (HT) wireless Ethernet transmission device with a single radio and an integrated directional antenna. The product is designed for high throughput point-to-point or multi-point applications.

- Pre-configured and ready to be installed and put into production at the site – only mounting and alignment needed.
- Up to 180 Mbps in one direction – using MIMO technology.
- Up to 240 Mbps total full duplex – using MIMO technology.
- Distances up to 2 km (ETSI EU Region).
- High Throughput Back Haul Link for installations that require connecting to more than one Ethernet device.
- Industrial Single Radio, 2 x Gbps Ethernet ports, Internal 19 dBi 17° beamwidth Horizontal/Vertical directional antenna (ETSI EU Region).
- 5 GHz Wireless Radio.
- ETSI Standards: - DFS Dynamic Frequency Selection, - TPC Transmit Power Control.
- Secure transmission: WPA2 – AES encryption.
- 802.11n – (802.11a/n compliant).
- Antenna Alignment Tools eases installation and setup – An easy to read LED array displays unit operational status along with received signal strength ensuring optimal installation and operation.
- Guest Login feature for displaying unit operational status along with received signal strength and for enable/disable the Alignment Buzzer ensuring optimal installation and operation.
- Meets class IP67 dust and water immersion protection standards.
- Port 1 supports IEEE 802.3af/at PD PoE Power, Port 2 provides IEEE 802.3af PSE PoE Power (for powering IEEE 802.3af PoE PD connected devices).
 - The units can be powered by an IEEE 802.3af/at PoE compliant device/PoE-switch or through a sold-separately PoE/PoE+ injector with the second Ethernet port servicing as an IEEE 802.3af power source.
 - *Vicon Norway AS recommends using the SecLink-III-1Gb-PoE+ / CNGE11PS 1 Port Gigabit PoE+ Injector providing full flexibility on both Ethernet ports.*
 - Port 1 – PD – PoE Powered Device: Powered by PoE-Injector or PoE-Switch
 Port 2 – PSE – Power Sourcing Equipment: Delivers PoE-based Power to PoE-Powered Devices (IP-Cameras)
- NetWave™ Articulating Wall or Pole Mounting Bracket. Supports Up To 3in/76mm Diameter Poles. Includes AISI 316 Grade (A4) Stainless Steel Fixings. For use in High Corrosion & Extreme Environments.
- For multi-point applications the SecLink-III-Ant / NWAVBSA1 External Antenna is used.
 NetWave™ External Dual Polarization 18/17/16dBi Variable Beam Sector Antenna - User Configurable 60°, 90° or 120°. Two 1.2M Long N-Type Outdoor Cables & Pole Mounting Hardware Included.
- SEClink-mkIII units operates as a layer-2 bridge. It is not necessary that their IP addresses belong to the same subnet as the equipment that use/transport traffic through the units.
 However, no other device can have the same IP addresses.
 Please verify that these IP addresses are not in use.

FIGURE 1 – INDUSTRIAL HIGHTHROUGHPUT WIRELESS ETHERNET LINK



FIGURE 2 – STATUS INDICATING LEDS



SIGNAL STRENGTH:

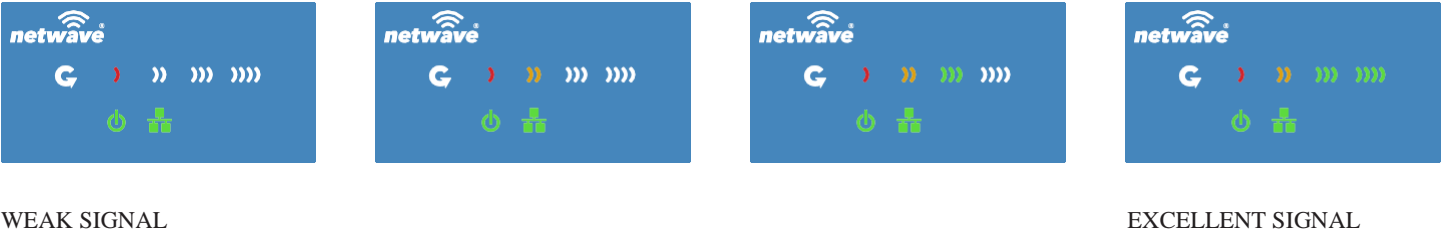


FIGURE 3 – INSTALLATION INSTRUCTIONS**Step 1.**

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 3 in (76 mm) in diameter.

**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 CNGE1IPS 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 NW7[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.

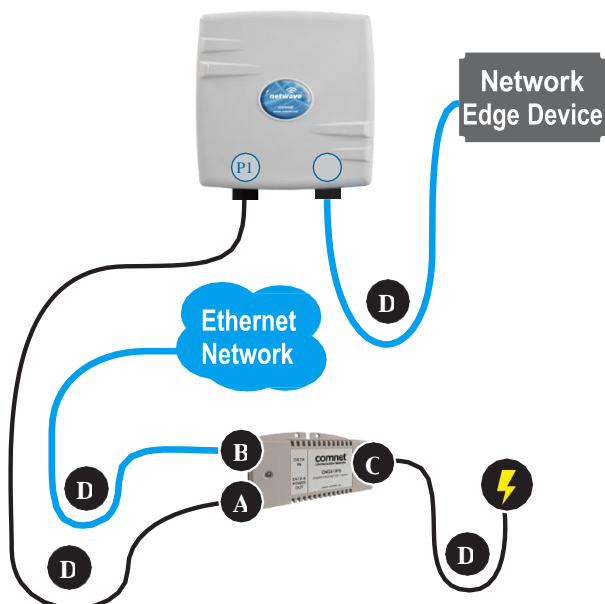
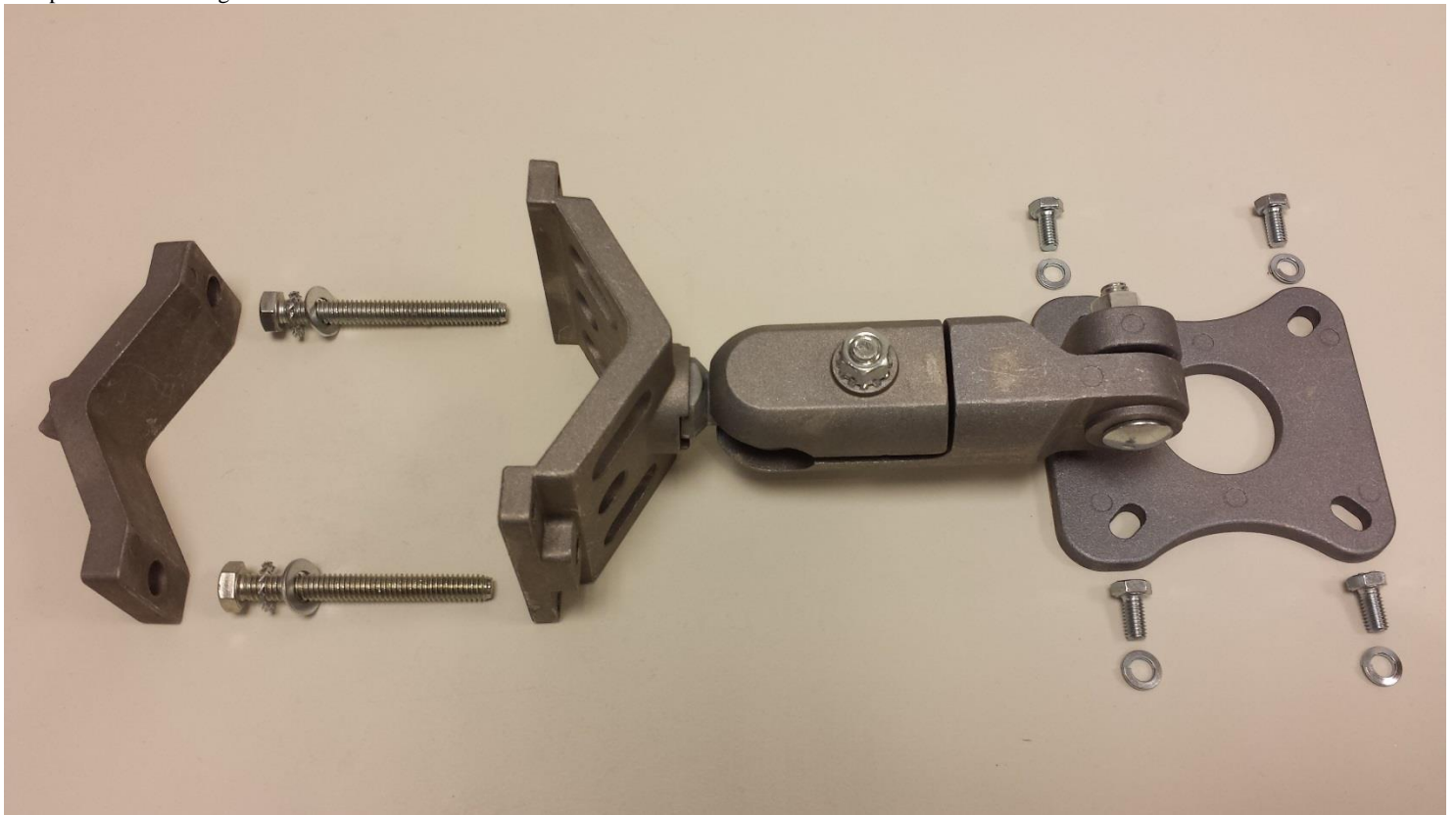


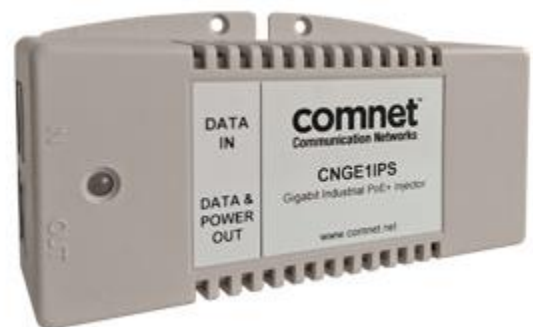
FIGURE 4 – POLE AND WALL MOUNT INSTRUCTIONS**Included Hardware**

NetWave™ Articulating Wall or Pole Mounting Bracket For Industrial NW1, NW2, NW7, NW8 Models, Supports Up To 3in/76mm Diameter Poles.
With AISI 316 Grade (A4) Stainless Steel Fixings. For Use in High Corrosion & Extreme Environments.

Components and Fixings details:**FIGURE 5 – Recommended Power over Ethernet (PoE+) Midspan Injector for 10/100/1000T(X)****CNGE1IPS****Not Included Hardware (Sold Separately)**

Industrial 1 Port Gigabit PoE+ Injector, 10/100/1000BASE-TX, 56VDC @ 35W Output (IEEE802.3at Compliant), -25°C to +75°C, Integrated PSU, 90-264VAC Input, Wall/DIN Mount

The CNGE1IPS is fully compliant with the requirements of IEEE 802.3at for Power Sourcing Equipment (PSE), and features auto detection of powered devices (PDs). Transmission distances of up to 330 feet (100 meters) are supported, and this injector supplies operating power for all PDs drawing a maximum of 30 watts. The unit provides AC line and powered device over-voltage and short circuit protection.



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.

CONFIGURING NETWAVE SEClink-mkIII

From Vicon Norway AS all Netwave SEClink-mkIII kits/units are already pre-configured and ready to be installed and put into production at the site! Pre-configured and ready to use!

HOW TO USE AND CONNECT CNGE1IPS - Industrial 1 Port Gigabit PoE+ Injector

Vicon Norway AS recommends using the SecLink-III-1Gb-PoE+ / CNGE1IPS 1 Port Gigabit PoE+ Injector providing full flexibility on both Ethernet ports. Not Included Hardware (Sold Separately)

1. Connect an Ethernet cable from the port labelled as IN on the power Injection Module to either a laptop or a PC LAN or a Network Switch port.
2. Connect the second Ethernet cable from the OUT port on the Power Injection Module to the NetWave LAN POE IN PD Port 1.
3. Apply mains voltage to the Power Injection Module with the provided power cable. 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/PC being used to log into the Netwave SEClink-mkIII unit to static and the subnet to 192.168.168.x (x = 168/not the same as the Netwave SEClink-mkIII units, please see below) and mask 255.255.255.0.

NETWAVE SEClink-mkIII – DEFAULT CONFIGURATIONS

IP Address of Web Server – Access Point:	192.168.168.240	(Access Point in Point-to-Point and Point-to-MultiPoint configurations)
Network Mask:	255.255.255.0	
Default Gateway:	Not configured / no default gateway	
IP Address of Web Server – Client 1:	192.168.168.241	(Client 1 in Point-to-Point and Point-to-MultiPoint configurations)
IP Address of Web Server – Client 2:	192.168.168.242	(Client 2 in Point-to-MultiPoint configurations)
IP Address of Web Server – Client n:	192.168.168.24n	(Client n in Point-to-MultiPoint configurations)
	(Up to a maximum of 5 Clients recommended)	
LAN Mode for Web Server:	Static Addressing	
Web Server User ID:	guest	(Guest Login feature to view status and statistics)
Web Server Password:	netwaveguest	
SSID:	Unique for each configuration set (Access Point & Client (s))	
WPA2 Pre-shared Key:	Unique for each configuration set (Access Point & Client (s))	
Channel-Frequency (AP):	Auto	
Channel Spectrum Width:	20/40M	

NETWAVE SEClink-mkIII – PRODUCT NAME/UNIT NAMING CONVENTIONS

NW7E-AP-WDS-AccessPoint1	(192.168.168.240) Access Point 1 with internal antenna
NW7E-EXA-AP-WDS-AccessPoint1	(192.168.168.240) Access Point 1 with external antenna
NW7E-CPE-WDS-Client1	(192.168.168.241) Client 1 with internal antenna
NW7E-CPE-WDS-Client2	(192.168.168.242) Client 2 with internal antenna
NW7E-CPE-WDS-Clientn	(192.168.168.24n) Client n with internal antenna
NW7E-EXA-CPE-WDS-Client1	(192.168.168.241) Client 1 with external antenna
NW7E-EXA-CPE-WDS-Client2	(192.168.168.242) Client 2 with external antenna
NW7E-EXA-CPE-WDS-Clientn	(192.168.168.24n) Client n with external antenna

NETWAVE SEClink-mkIII - LOGIN – STATUS AND STATISTICS

5. Point the browser to 192.168.168.240/241/242/24n – according to above chapter “NETWAVE SEClink-mkIII - DEFAULT CONFIGURATIONS”.
6. A login prompt will pop up. Enter:

Username	guest
Password	netwaveguest
7. Status Tab

After guest user login, when you click on the Status top-level tab, you can see the second-level tabs of Overview, Routes, System Log, Kernel Log and Realtime Graphs.

Below you see typical Status\Overview panels for an Access Point and a Client. These panels is very useful when deploying new units into production at the site and in troubleshooting situations as well.

The Status\Realtime Graphs subpanels shows current data in a 4 minutes window with 3 seconds interval of load, traffic, wireless and connection.

NETWAVE SEClink-mkIII – INITIAL INSTALLATION AND SETUP

From Vicon Norway AS all Netwave SEClink-mkIII kits/units are already pre-configured and ready to be installed and put into production at the site! During pole or wall mount of the antenna (internal or external) alignment must be performed to achieve acceptable received signal strength. The Antenna Alignment Tools eases installation and setup.

The antenna alignment process can be performed either using;

- The Status Indicating LED array – displaying unit operational status along with received signal strength ensuring optimal installation.
- Guest Login feature - displaying unit operational status along with received signal strength and for enable/disable the Alignment Buzzer ensuring optimal installation and operation.

In most cases, the use of the Status Indicated LEDs should be good enough to perform the antenna alignment and adjustment!

8. Please see Figure 2.

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 dBm to -95 dBm	No Signal or intermittent operation
-75 dBm and greater	Moderate Connection
-65 dBm and greater	Solid Connection
-55 dBm to -40 dBm	Excellent Connection

If received Signal Strength is greater than -40 dBm, (i.e. signal is too strong), it is recommended to reduce RF TX power. However, our experience is that in practice this rarely results in real problems.

To achieve best possible working conditions for SEClink-mkIII units signal strength should be between -65 dBm to -40 dBm.

In the Link Status section on the Status\Overview web page, the value in the top left box denotes in figures the current received signal strength in dBm.

The Signal Strength box quality levels is red when ≤ -75 dBm, yellow when -75 dBm to ≤ -65 dBm and green when > -65 dBm.

-75 dBm	-65 dBm	-40 dBm	
---------	---------	---------	--

The Signal strength status indicating LEDs on the units has the following dBm levels and corresponding colors:

LED #1	-85 dBm	Solid RED
LED #2	-75 dBm	Solid ORANGE
LED #3	-65 dBm	Solid GREEN
LED #4	-55 dBm	Solid GREEN

UNDERSTANDING TX-CCQ

The TX-CCQ displays the transmission quality in %. A higher percentage means a better wireless connection quality. Actually the TX-CCQ displays the transmission quality in percentage of successfully transferred RF frames.

A percentage of 100 is best.

Acceptable levels are between 80% and 100%.

The TX-CCQ is most useful when setup and alignment are finished and the units are transferring data to and from the connected networks.

CONFIGURATION ADJUSTMENTS - ADMIN USER ACCOUNT

The SECLink-mkIII kits/units are shipped pre-configured and ready to be installed and put into production at the site – only mounting and alignment must be performed. Both the Status Indicating LED array – (displaying unit operational status along with received signal strength ensuring optimal installation) and the Guest Login feature – (displaying unit operational status along with received signal strength and for enable/disable the Alignment Buzzer ensuring optimal installation and operation) are sufficient methods to complete the installation. In most cases, the use of the Status Indicated LEDs should be good enough to perform the antenna alignment and adjustment!

However, in special circumstances configuration adjustments may be required to ensure optimal operation conditions. To perform configuration changes the admin user account is required.

Please contact Vicon Norway AS to obtain the admin account credentials and/or to receive extended support.

PS!

Assistance from Vicon Norway AS regarding configuration changes to be performed or have been performed on the equipment after delivery will be invoiced.

STATUS OVERVIEW PANEL FOR ACCESS POINT

This panel is from an Access Point in a Point-to-Multipoint configuration with two Clients connected.

netwave
FROM COMNET

NW7E-EXA-AP-WDS-AccessPoint1 | NW7E_v1.87.1 | Auto Refresh: **on** Changes: 0

Status | System | Network | Logout

Overview | Routes | System Log | Kernel Log | Realtime Graphs

Status This panel is from an Access Point in a Point-to-Multipoint configuration with two Clients connected Uptime: 7d 0h 47m 17s

(AccessPoint1 - Client1 and Client2)

Wireless

QCA9882 802.11ac/an Radio

SSID: [LinkNetWave00032NOR](#) Encryption: WPA2 PSK (CCMP)
 Mode: Master-WDS ACK Timeout: 29
 Channel: 100 (5.500 GHz) DFS Status: Enabled
 Bitrate: 300 Mbit/s
 BSSID: 00:22:3B:0D:55:21

Associated Stations (2)

MAC-Address	Network	Device Name	Last IP	Signal	Signal/Chains	Noise	TX Rate	RX Rate	TX-CCQ
00:22:3B:0D:56:E5	LinkNetWave00032NOR	NW7E-CPE-WDS-Client2	192.168.168.242	-47 dBm	-69,-47 dBm	-95 dBm	300.0 Mbit/s	300.0 Mbit/s	99 %
00:22:3B:0D:55:75	LinkNetWave00032NOR	NW7E-CPE-WDS-Client1	192.168.168.241	-52 dBm	-69,-47 dBm	-95 dBm	300.0 Mbit/s	300.0 Mbit/s	99 %

System

Product Name NW7E-EXA-AP-WDS-AccessPoint1
 Firmware Version NW7E_v1.87.1
 Kernel Version 3.3.8
 Local Time Thu Apr 21 12:50:02 2016

Memory

Total Available 93760 kB / 126824 kB (73%)
 Free 75204 kB / 126824 kB (59%)

Network

Network

LAN

br-lan

WAN

wan

Status

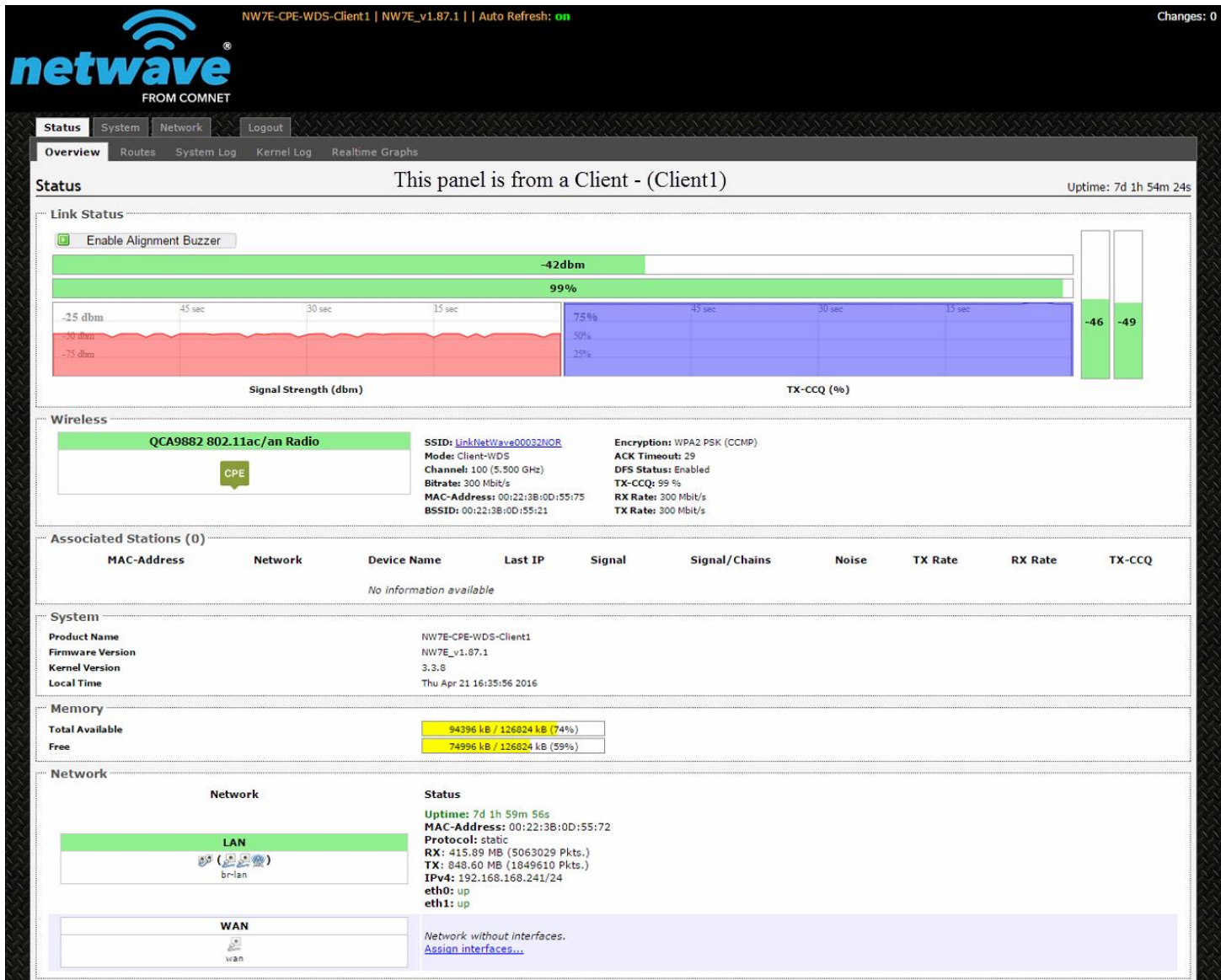
Uptime: 7d 0h 46m 55s
 MAC-Address: 00:22:3B:0D:55:1E
 Protocol: static
 RX: 393.30 MB (4900603 Pkts.)
 TX: 484.60 MB (1519819 Pkts.)
 IPv4: 192.168.168.240/24
 eth0: up
 eth1: up

Network without interfaces.
[Assign interfaces...](#)

(On this Access Point, both LAN Ethernet ports are in use.)

STATUS OVERVIEW PANEL FOR CLIENT

This panel is from a Client, which is associated/has a wireless connection to an Access Point.



(On this Client, both LAN Ethernet ports are in use.)

WIRELESS FOR ACCESS POINT MODE

The following describes the parameters when the device is in the AP mode.

Parameters in the Wireless section for a device operating as an 802.11 access point:

SSID	Displays the name of the wireless network that this access point (AP) is offering, the Service Set Identifier (SSID).
Mode	This is “Master” if the device is in AP WDS mode.
Channel	Shows the channel number and frequency that this AP is using.
Bitrate	This is the maximum bitrate supported by the radio in the current configuration.
BSSID	This is the MAC address of the AP’s radio.
Encryption	Displays the wireless encryption used.
ACK Timeout	Shows the maximum acknowledgment time in microseconds.
DFS Status	If DFS is enabled, the AP automatically switches channel if radar is detected on the current channel.

ASSOCIATED STATIONS FOR ACCESS POINT MODE

This section shows the connected devices, if the Radio is in the AP mode.

List of Associated Stations: If there are no associated stations, the text “No information available” is displayed. The parameters shown are as follows:

MAC-Address	Displays the MAC address of the station’s radio.
Network	States the name of the wireless network.
Device Name	Shows the name of the station.
Last IP	States the most recent IP address of the station as seen by the Radio.
Signal	Displays the received signal strength from the station.
Signal/Chains	Shows the received signal strengths from the station on each antenna.
Noise	Displays the received noise power at the AP.
TX Rate	Shows the transmit bit rate from the AP towards this station.
RX Rate	Shows the receive bit rate at the AP from this station.
TX-CCQ	Indicates the wireless connection quality.

WIRELESS FOR STATION/(CLIENT) MODE

The following describes the parameters for a device operating in Station mode.

Parameters in the Wireless section for a device operating as an 802.11 station:

SSID	Displays the name of the wireless network that this station should be associated with.
Mode	This is “Client” if the device is in Station WDS mode.
Channel	Shows the channel number and frequency that this station is using. Normally, it would automatically select the same channel as the AP.
Bitrate	This is the maximum bitrate supported by the radio in the current configuration.
MAC-Address	States the MAC address of the device’s radio.
BSSID	This is the MAC address of the AP’s radio.
Encryption	Display the wireless encryption used.
ACK Timeout	Shows the maximum acknowledgment time in microseconds.
DFS Status	If DFS is enabled, the AP automatically switches channel if radar is detected on the current channel.
TX-CCQ	Displays the transmission quality in %. A higher percentage means a better wireless connection quality.
RX Rate	Shows the receive bit rate of this station.
TX Rate	Shows the transmit bit rate of this station.

LINK STATUS FOR STATION/(CLIENT) MODE

This section only applies if device operates as an 802.11 station.

In the Link Status section on the Status\Overview web page, the value in the top left box denotes the current received signal strength.

The box directly below it shows the current TX-CCQ (transmission client connection quality).

The bottom left box shows a real-time graph of the received signal strength over the last 60 seconds.

The box directly to its right shows a real-time graph of the TX-CCQ over the past 60 seconds.

On the right of this section, there are vertical bars. Each bar shows the current received signal strength of each antenna.

Enable Alignment Buzzer: When enabled, the board would continually emit beeping sounds to indicate the received signal strength. Every 3 seconds, the board would emit a number of beeps (1 to 4) in quick succession. The number of beeps is the same as the number of lighted Signal strength indicator LEDs. See Section “FIGURE 2 – STATUS INDICATING LEDS”. Just like for the LEDs, more beeps indicate a higher received signal strength. This is useful for a person aligning directional antennas at a height, in an outdoor scenario, if the LEDs are not visible. Another person on the ground could adjust the threshold values for the LEDs. There is some delay before the received signal strength gets reported by the alignment buzzer. To turn off the beeping sounds, click the button “Disable Alignment Buzzer”.



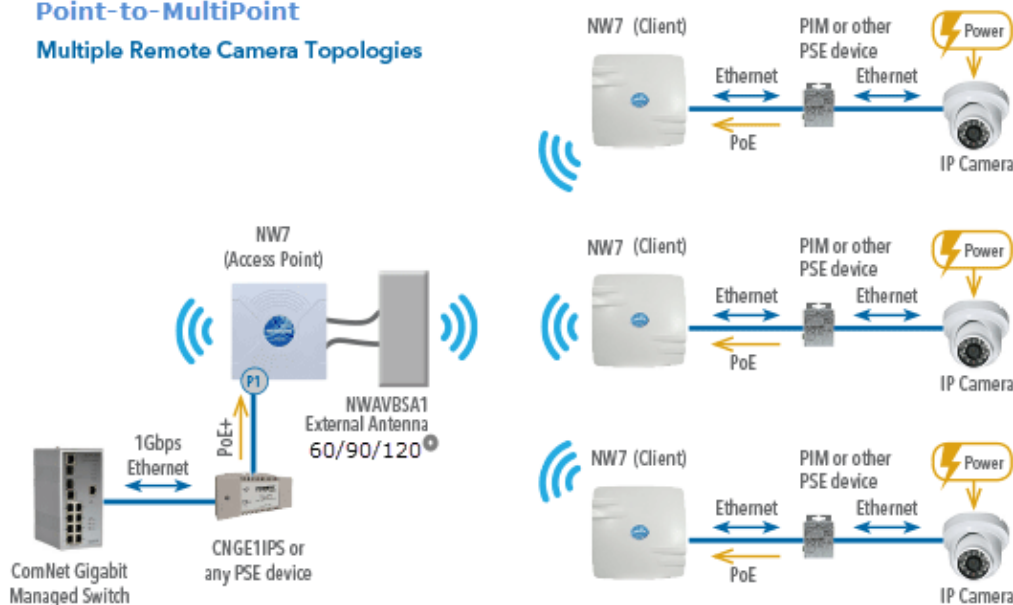
High Throughput Point-to-Point Topology (Shown with PoE Cameras)



Point-to-Point Topology (Shown with PoE Injector and PoE Powered Cameras)



Point-to-MultiPoint Multiple Remote Camera Topologies



AGENCY COMPLIANCE

FCC

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operations of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Industry Canada

This Class A digital apparatus complies with Canadian ICES-003. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that permitted for successful communication. This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions:

- This device may not cause interference, and
- This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 Canada. Pour réduire le risque d'interférence aux autres utilisateurs, le type d'antenne et son gain doivent être choisies de façon que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas ce qui est nécessaire pour une communication réussie. Cet appareil est conforme à la norme RSS Industrie Canada exempts de licence norme(s). Son fonctionnement est soumis aux deux conditions suivantes:

17 Compliance

- Cet appareil ne peut pas provoquer d'interférences et
- Cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.

RF Exposure Warning

The antennas used for this transmitter must be installed to provide a separation distance of at least 2.52m from all persons and must not be located or operating in conjunction with any other antenna or transmitter.

Les antennes utilisées pour ce transmetteur doivent être installé en considérant une distance de séparation de toute personnes d'au moins 2.52m et ne doivent pas être localisé ou utilisé en conflit avec tout autre antenne ou transmetteur.

CE Marking

CE marking on this product represents the product is in compliance with all directives that are applicable to it. This equipment may be operated in the following countries:

Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Norway, Portugal, Romania, Czech Republic, Croatia, Slovakia, Slovenia, Sweden, UK

Installer Compliance Responsibility

Devices must be professionally installed and it is the professional installer's responsibility to make sure the device is operated within local country regulatory requirements.

RoHS/WEEE Compliance Statement

European Directive 2002/96/EC requires that the equipment bearing this symbol on the product and/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about the disposal of your old equipment, please contact your local authorities, waste disposal service, or the shop where you purchased the product.

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/>



3 CORPORATE DRIVE | DANBURY, CT 06810 | USA
T: 203.796.5300 | F: 203.796.5303 | TECH SUPPORT: 1.888.678.9427 | INFO@COMNET.NET

8 TURNBERRY PARK ROAD | GILDERSOME | MORLEY | LEEDS, UK LS27 7LE
T: +44 (0)1133076400 | F: +44 (0)1132537462 | INFO-EUROPE@COMNET.NET

© 2015 Communications Networks Corporation. All Rights Reserved. "ComNet," the "ComNet Logo," "NetWave," and the "NetWave Logo" are registered trademarks of Communication Networks, LLC.

This page is left intentionally blank.



QUICK START GUIDE



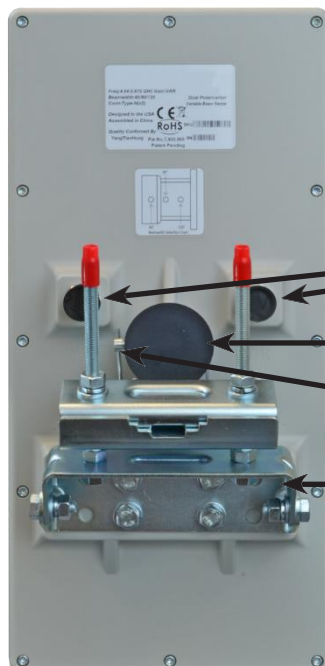
NWAVBSA1 EXTERNAL DUAL POLARIZATION VARIABLE BEAM SECTOR ANTENNA

**This manual serves the following
ComNet Model Number:**
NWAVBSA1

Thank you for purchasing NetWave® from ComNet. This quick start guide is designed to walk you through installation of the NWAVBSA1 Variable Beam Sector Antenna in an application using the NetWave® NW7[E] industrially hardened dual radio wireless ethernet device.

FIGURE 1 – NWAVBSA1 EXTERNAL DUAL POLARIZATION VARIABLE BEAM SECTOR ANTENNA

FRONT



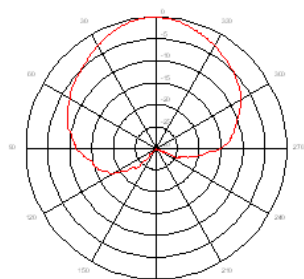
BACK

N-Type Connectors
(shown with dust caps)

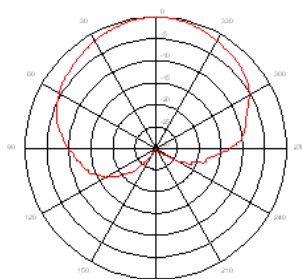
Beamwidth Adjuster

Locking Pin Mounting

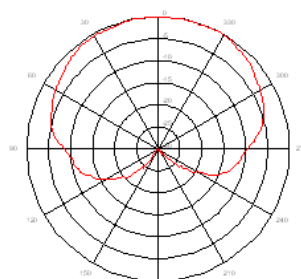
Bracket

FIGURE 2 - RF PATTERNS

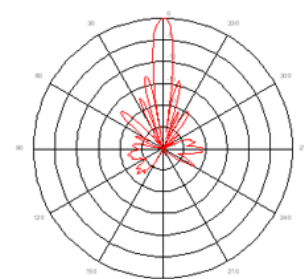
60° Horizontal



90° Horizontal



120° Horizontal



Vertical, Typical

FIGURE 3 – INSTALLATION INSTRUCTIONS**Step 1.**

Unpack the hardware from the box. The pre-assembled mount is designed to support poles up to 3 in (7.6 cm) in diameter. Remove the bracket and screws from the mount in order to more easily reach the N-type connectors and black Rear Tube.

**Step 2.**

Remove the Locking Pin from the black Beamwidth Adjuster by unclipping the right side first, sliding the pin to the left until it exits the gray Back Housing and hangs free (the wire attached to the Back Housing will prevent loss).

**Step 3.**

Set the depth of the Adjuster according to the desired beamwidth. Align the holes in the Beamwidth Adjuster with the gray Back Housing.

60° - Beamwidth Adjuster set to third hole position.

90° - Beamwidth Adjuster set to middle hole position.

120° - Beamwidth Adjuster set to first hole position (pressed all the way in).

Note: If two Beamwidth Adjusters are being used, both should be set the same for accurate beam width.

Step 4.

Replace the Locking Pin through the Back Housing and Beamwidth Adjuster and position the clip on the right side to secure it.

**Step 5.**

Connect both included cables from the N-type connector on the NetWave® NW7[E] external antenna connector to the corresponding connector on the NWAVBSA1.



FIGURE 4 – POLE MOUNT INSTALLATION GUIDE

The pole mount bracket is installed at time of shipment. Unfold the bracket assembly away from the body of the antenna to allow access to the connectors and beamwidth selector.

Mount antenna to pole via the bracket, noting the orientation of the hardware in photos below. Adjust the vertical tilt of the antenna and tighten all bolts to secure.

The included Mounting kit is designed to support poles from 2.0 in (5 cm) to 2.75 in (7 cm) in diameter.



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/>



3 CORPORATE DRIVE | DANBURY, CT 06810 | USA
T: 203.796.5300 | F: 203.796.5303 | TECH SUPPORT: 1.888.678.9427 | INFO@COMNET.NET
8 TURNBERRY PARK ROAD | GILDERSOME | MORLEY | LEEDS, UK LS27 7LE
T: +44 (0)1133076400 | F: +44 (0)1132537462 | INFO-EUROPE@COMNET.NET

© 2016 Communications Networks Corporation. All Rights Reserved. “ComNet,” the “ComNet Logo,” “NetWave,” and the “NetWave Logo” are registered trademarks of Communication Networks, LLC.