



802.11b/g/n PCIe Module

Model Number: NGP1024



Warning Statement

FCC NOTICE

This device 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 device 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 device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Connect the computer to an outlet on a circuit different from that to which the receiver is connected.
- Increase the separation between the computer and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

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

FCC Compliance Statement: 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.

RF Exposure warning

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment.

This device and its antenna(s) must not be co-located with any other transmitters except in accordance with FCC multi-transmitter product procedures.

Referring to the multi-transmitter policy, multiple-transmitter(s) and module(s) can be operated simultaneously without C2P.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is responsible for the compliance to all the rules that apply to the product into which this certified RF module is integrated.

Additional testing and certification may be necessary when multiple modules are used.

26cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 26cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: HZB-NGP1024 ". If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of 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.

Antenna List

This radio transmitter **FCCID: HZB-NGP1024** has been approved by FCC to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	SmartAnt	N/A	Dipole	4.5dBi for 2.4GHz
2	Kunshan Wavelink	N/A	Dipole	2.0dBi for 2.4GHz
3	Compex Systems	N/A	Panel	14dBi for 2.4GHz
4	Compex Systems	N/A	Panel	6.5dBi for 2.4GHz
5	Compex Systems	N/A	Panel	11dBi for 2.4GHz
7	Smartant	USI05-220170	Dipole	2.5dBi for 2.4 GHz
8	Mars	MA-WO25-9	Omni	10dBi for 2.4 GHz
9	Mars	MA-WA25-20	Panel	20dBi for 2.4 GHz

IC NOTICE

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

Cet appareil et son antenne (s) ne doit pas être co-localisés ou fonctionner en association avec une autre antenne ou transmetteur.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il

faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated.

Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

The device could automatically discontinue transmission in case of absence of information to transmit, or operational failure. Note that this is not intended to prohibit transmission of control or signaling information or the use of repetitive codes where required by the technology.

Le dispositif pourrait automatiquement cesser d'émettre en cas d'absence d'informations à transmettre, ou une défaillance opérationnelle. Notez que ce n'est pas l'intention d'interdire la transmission des informations de contrôle ou de signalisation ou l'utilisation de codes répétitifs lorsque requis par la technologie.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 26cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 26cm de distance entre la source de rayonnement et votre corps.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is still responsible for the IC compliance requirement of the end product, which integrates this module.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 26cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the IC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. IC statement is required to be available in the users manual: This Class B digital apparatus complies with Canadian ICES-003. 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX IC : 1856A-NGP1024 ".

Antenna List :

This radio transmitter **IC: 1856A-NGP1024** has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Cet émetteur radio **IC: 1856A-NGP1024** a été approuvé par Industrie Canada pour fonctionner avec les types d'antennes énumérés ci-dessous avec le gain maximal admissible et impédance d'antenne requise pour chaque type d'antenne indiqué. Types d'antennes n'est pas inclus dans cette liste, ayant un gain supérieur au gain maximal indiqué pour ce type, sont strictement interdits pour une utilisation avec cet appareil.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Smartant	USI05-220170	Dipole	2.5dBi for 2.4 GHz
2	Mars	MA-WO25-9	Omni	10dBi for 2.4 GHz
3	Mars	MA-WA25-20	Panel	20dBi for 2.4 GHz

Electromagnetic Interference (Conduction and Radiation): EN 55022 (CISPR 22)

Electromagnetic Immunity: EN 55024 (IEC61000-4-2, 3, 4, 5, 6, 8, 11) **Low**

Voltage Directive: EN 60 950: 1992+A1: 1993+A2: 1993+A3: 1995+A4: 1996+A11: 1997.

CE Mark: following the provisions of the EC directive.

The wireless card in this product complies with the R&TTE Directive (1999/5/EC) issued by the Commission of the European Community. Compliance with this directive implies conformity to the following:

EMC Standards: FCC: 47 CFR Part 15, Subpart B, 47 CFR Part 15, Subpart C (Section 15.247);

CE:

EN 300 328, EN 301 489-17

CE Mark: following the provisions of the EC directive.

Manual Version: 2.08c (June 2010)

This manual is written based on Firmware version 2.00

Overview the Product

Introduction

The high-performance Wireless Radio module is designed for enterprise and public access applications. Embedded with the Atheros chipset, it boasts network robustness, stability and wider network coverage. Based on 802.11n, the access point supports high-speed data transmission of up to 300Mbps.

The access point host is capable of operating in different modes, which makes it suitable for a wide variety of wireless applications, including long-distance deployments.

Designed with dual polarization high gain antenna it offers a compact, rugged design for outdoor installation and excellent performance.

Moreover, its integrated Power over Ethernet (PoE) allows the access point to be used in areas where power outlets are not readily available.

To protect your security and privacy, the access point is armed with many enhanced and latest wireless security features such as IEEE 802.11i standards, MAC Address Filtering, IEEE 802.1x Authentication and 64/128-bit WEP (Wired Equivalent Privacy) to ensure privacy for the heterogeneous mix of users within the same wireless network.

The access point also incorporates a unique set of advanced features such as: Virtual AP to deliver multiple services; Long-Range parameter fine-tuning which provide the access point with the ability to auto-calculate parameters such as slot time, ACK time-out and CTS time-out to achieve a longer range.

Features

- Atheros XSPAN family chipset
- IEEE 802.11n compliant and backward compatible with 802.11b/g
- 2.4GHz Single-band 2 x 2 MIMO spatial multiplexing technique
- Maximum output power 23dBm@802.11b/g -26dBm MIMO aggregate
- Supports up to 300Mbps physical data rates
- Delivers up to 10 times the throughput and nearly twice the range of legacy 802.11b/g networks
- Transmission Power Control (IEEE 802.11h TPC)
- Supports spatial multiplexing and maximal ratio combining (MRC)
- Multi-Country Roaming Supported (IEEE802.11d Global Harmonization Standard)
- 2 x U.FL Antenna Connector
- Complaint with PCI-Express Mini Card 1.1 Standard
- Supports 802.11x authentication, 64/128/152Bit WEP, IEEE802.11i encryption

Virtual AP (Multiple SSID)

Virtual AP implements mSSID (Multi-SSID) This allows a single wireless card to be set up with multiple virtual AP connections with different SSIDs or BSSID (Basic Service Set Identifier) and security modes.

Highly Secured Wireless Network

The access point supports the highest available wireless security standard: IEEE802.11i compliant.

The access point also supports IEEE 802.1x for secure and centralized user-based authentication.

Wireless clients are thus required to authenticate through highly secure methods like EAP-TTLS and EAP-PEAP, in order to obtain access to the network.

uConfig Utility

The exclusive uConfig utility allows users to access the user-friendly Web configuration interface of the access point without having to change the TCP/IP setup of the workstation.

HTTPS

The access point supports HTTPS (SSL) in addition to the standard HTTP. HTTPS (SSL) features additional authentication and encryption for secure communication.

Telnet

Telnet allows a computer to remotely connect to the access point CLI (Command Line Interface) for control and monitoring.

SSH (Secure Shell Host) establishes a secure host connection to the access point CLI for control and monitoring.

Install in the Host

This device will be build-in into Proxim's Host Tsunami ®, and it should be professional installation.

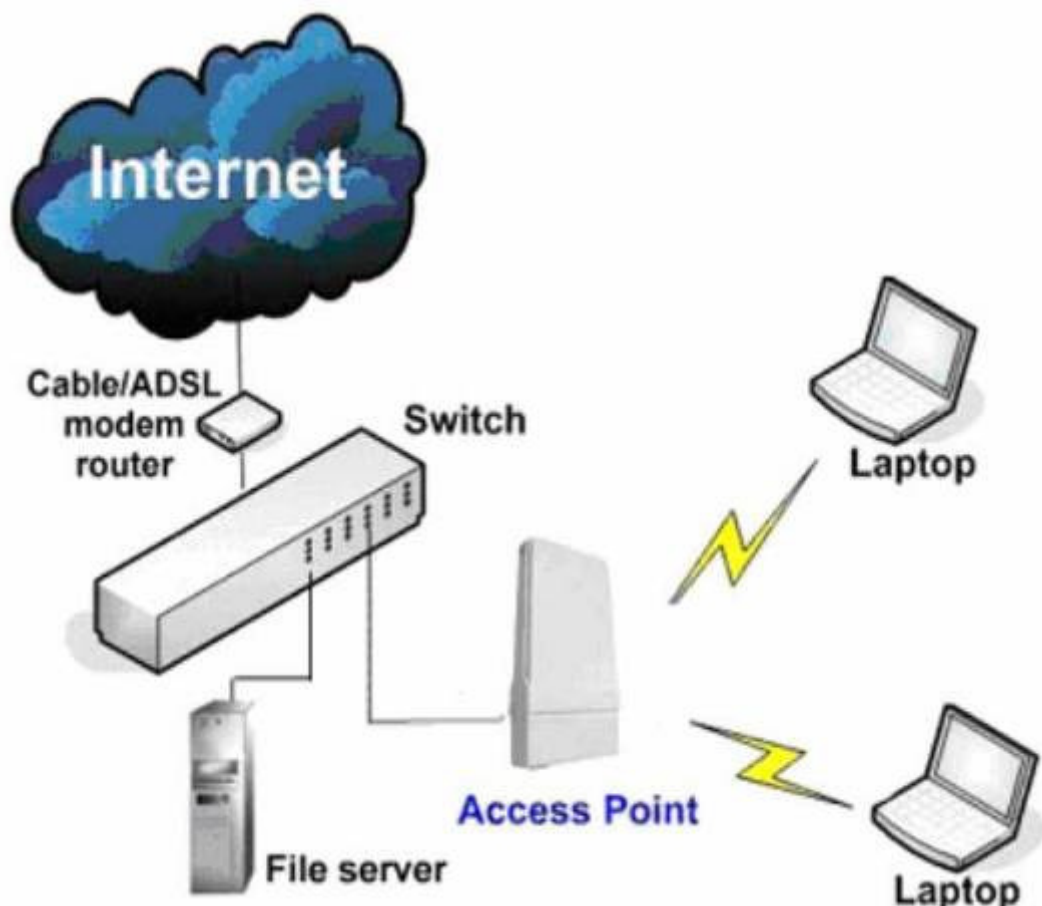
The host system must be labeled with: Contains FCC ID: HZB-NGP1024;

Please refer to the user guide for the host on our web site:
<http://www.proxim.com/>

Operation Modes and Connection Examples

Access Point and Access Point WDS Mode

The Access Point Mode is the default mode of the device. It enables the bridging of wireless clients to wired network infrastructure and enables transparent access and communication with each other. The illustration below shows a typical resources sharing application example using this device. The wireless users are able to access the file server connected to the switch, through the access point in Access Point Mode.



Access Point WDS Mode

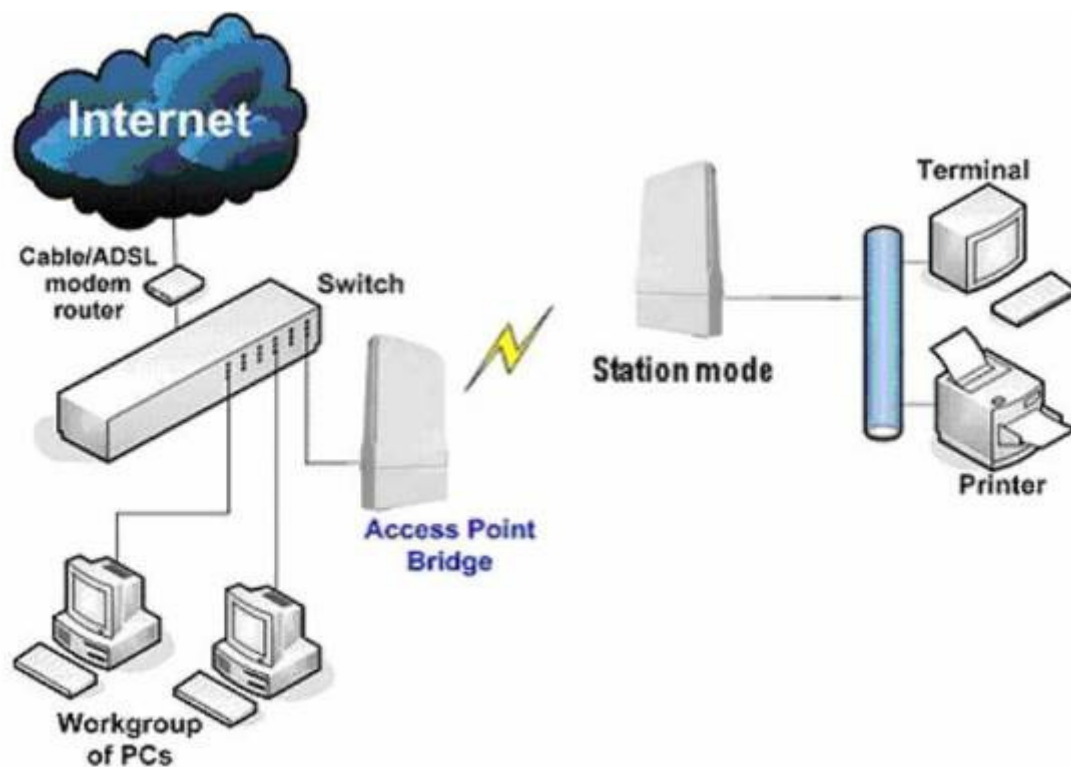
This mode is generally used for point-to-point or point-to-multi-point connections. It is mainly used with Station WDS to build the point and multi-point connections.

Station Mode

In **Station** mode the device acts as a wireless client.

When connected to an access point, it creates a network link between the Ethernet network connected at this client device, and the wireless Ethernet network connected at the access point.

In this example the workgroup PCs on the ethernet network connected to the Station device can access the printer across the wireless connection to the access point where the printer is connected.



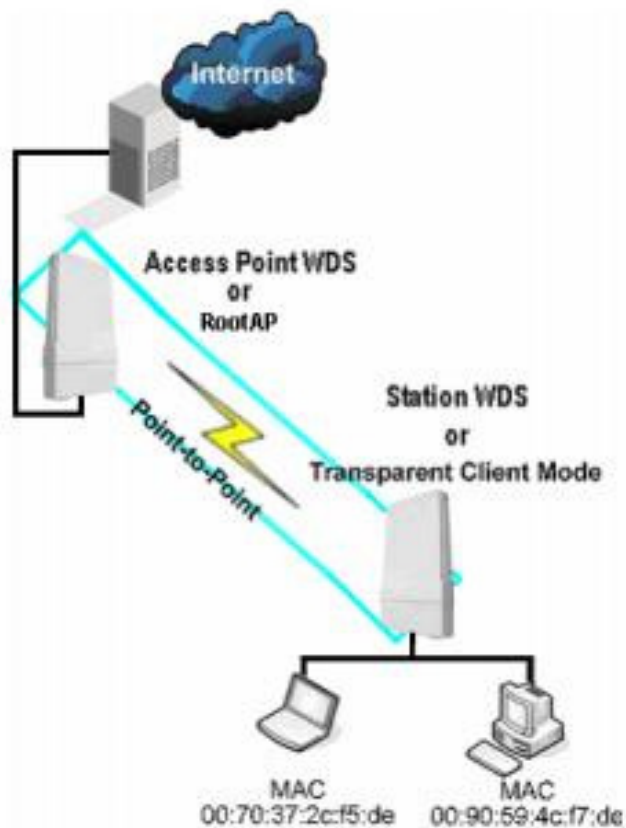
Station WDS Mode

Station WDS mode is similar to Station mode. The difference is Station WDS must connect to access point configured to Access Point WDS (or RootAP) mode.

Station WDS is mainly use for point-to-point connection between 2 buildings or locations as far as several kilometer away.

Point-to-Point	Point-to-MultiPoint
An access point setup as Access Point WDS (or RootAP) and other as Station WDS (Transparent Client).	An access point setup as Access Point WDS (or RootAP) and several other devices as Station WDS (or Transparent Client).

This mode is generally used for outdoor connections over long distances, or for indoor connections between local networks.



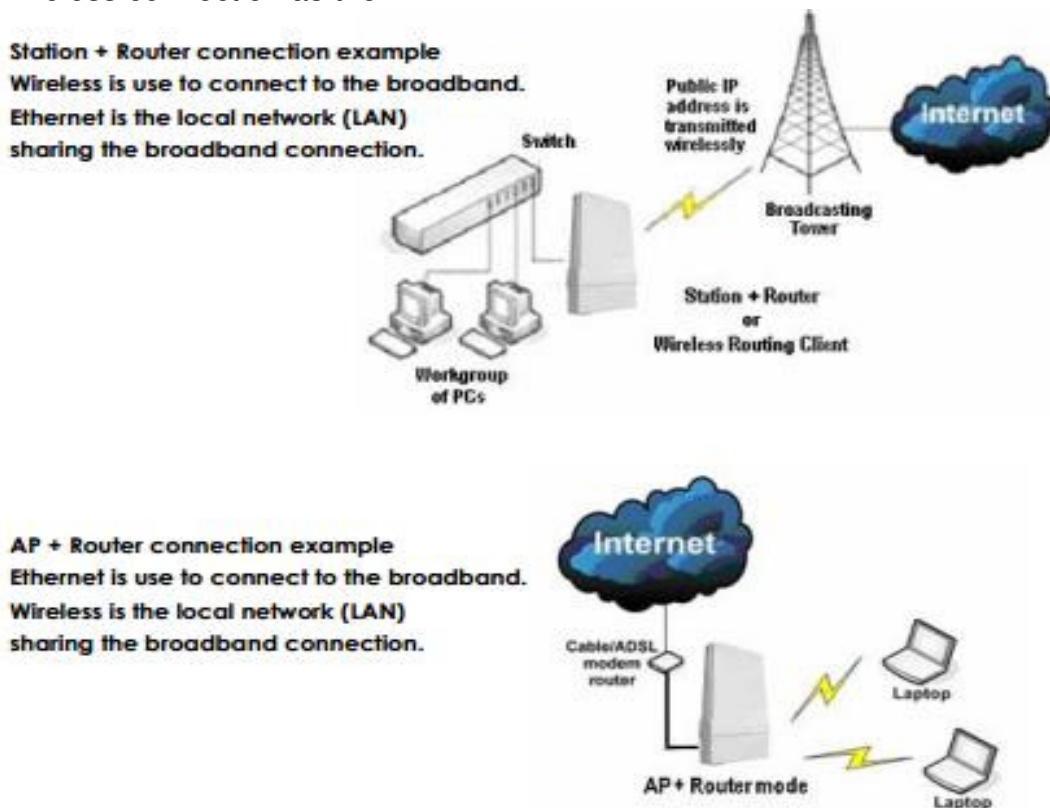
Router Mode

In Router Mode, the device also operates as a router.

Either the wireless or Ethernet can be setup as WAN connection to a broadband modem. Wireless as WAN is known as **Station + Router mode** (or **Wireless Routing Client**

mode) and Ethernet as WAN is known as **AP + Router mode**(or **Gateway mode**). Device supports several types of broadband connections Static IP, Dynamic IP and PPPoE. For setup details refer to the respective section.

The illustration below shows the Ethernet port is setup as the WAN port and the wireless connection as the LAN.



Broadband Internet Access Type:

Static IP Address

Use Static IP Address you have subscribed a fixed IP or range IP addresses from your ISP.

Dynamic IP Address

With Dynamic IP Address the device automatically request IP address from modem or ISP.

PPP over Ethernet (PPPoE)

When using ADSL services provided byyour ISP support PPPoE connection.

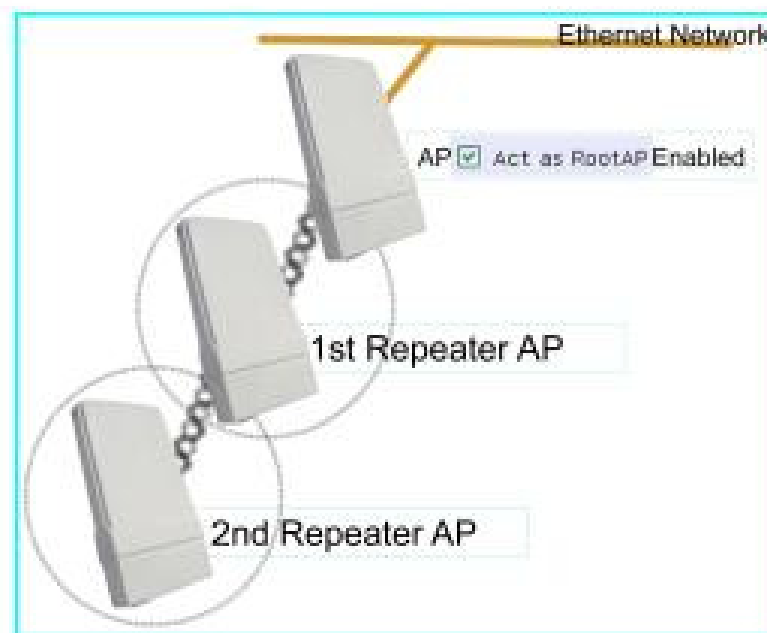
Repeater WDS Mode

Repeater WDS Mode is mainly to extend the wireless range and coverage of the wireless network allowing access and communications over places generally difficult for wireless clients to connect to the network.

In Repeater mode, the access point acts as a relay for network signals on the network by regenerating the signals it receives, and retransmitting them to main network infrastructure.

Detailed information on the Repeater mode is available in the Repeater Setup section.

**** Note: Repeater WDS requires the access point to be setup in RootAP or Access Point WDS mode to work.**



Install the Hardware

This section will show you how to install the hardware of the access point.

- **Antenna Alignment**

The antenna alignment of the access point must first be considered to ensure that the signal is strong.

- **Installation Direction**

After considering the antenna alignment, the direction in which the access point is facing must be considered to ensure that the signal is actually being directed to the receiving end.

- **Setting Up**

Lastly, after making these considerations and confirming the final position and facing direction of the access point, follow the instructions to physically set up and complete the installation of the access point

Setup Requirements

- CAT5/5e Networking Cable.
- At least 1 computer installed with a web browser and a wired or wireless network interface adapter.
- All network nodes installed with TCP/IP and properly configured IP address parameters.

Mount the Unit on a Pole

Access point is designed to mount to a pole. The mounting method will be described as shown below.

Note the following guidelines for choosing the best location for your wireless AP:

- Place the AP as close as possible to the area where users will require access to the WLAN.
- Choose an elevated location where trees, buildings and large steel structures will not obstruct the antenna signals and which offers maximum line-of-sight propagation with the users.
- Select an appropriate antenna to improve range and/or coverage and the access point also lets you fine-tune parameters such as the transmit power to achieve the best results

Prepare Unit to mount to a pole

Step 1

Unpack the 2 cable ties from the box.



Step 2

Loop each cable tie through the mounting bracket hole at the top and bottom. Wrap them round the pole and tighten the cable ties to secure the unit to the pole.

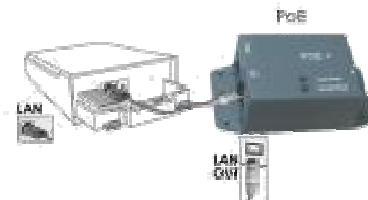


Step 3

Connect one end of an RJ45 Ethernet cable to the LAN OUT part of the injector and the other end to LAN of the access point.

Maximum length of the RJ45 Category 5 cable is 100 meters*.

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



Step 4

Connect the RJ45 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.

PoE power input: Passive PoE (range 12V – 24V DC)



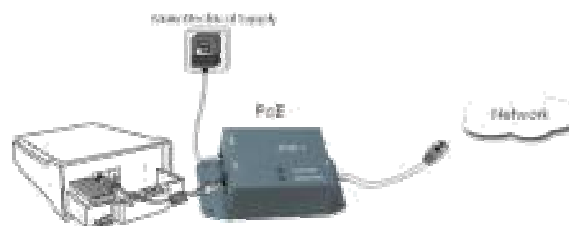
Step 5

Connect the power adapter in the PoE kit to the main electrical supply and the power plug into the socket of the injector.

Now, turn on your power supply. Notice that the **POWER** LED has lighted up. This indicates that the access point is receiving power through the PoE injector and that connection between the access point and your network has been established.

Note:

Please use the power adapter in the PoE kit. Using a power adapter with a different voltage rating will damage this product.



Configure the IP Address

After setting up the hardware you need to assign an IP address to your PC so that it is in the same subnet as the access point.

For Windows 95/98/98SE/ME/NT

Step 1:

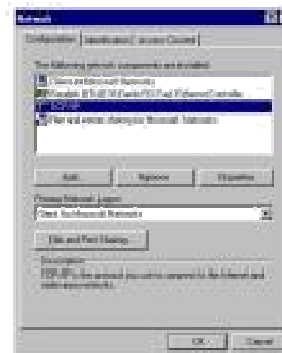
From your desktop, right-click the **Network Neighborhood** icon and select **Properties**.

Step 2:

Select the network adapter that you are using, then right-click and select **Properties**.

Step 3:

Highlight **TCP/IP** and click on the **Properties** button.



Step 4:

Select the **Specify an IP address** radio button.

Set the IP address to **192.168.168.X** and subnet mask to **255.255.255.0**, where X can be any number from 2 to 254.



Step 5:

To verify that the IP address has been correctly assigned to your PC, go to the Start menu, select Run, and enter the command: `wiipcfg`.



Select the Ethernet adapter from the drop-down list and click **OK**.

PC is now setup with proper IP address to communicate with the access point.

For Windows XP/2000

Step 1:

Go to your desktop, right-click on the **My Network Places** icon and select **Properties**.

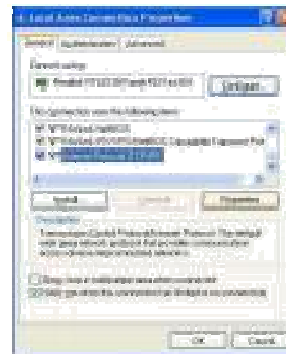
Step 2:

Right-click the network adapter icon and select **Properties**.



Step 3:

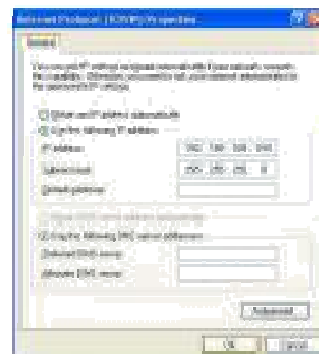
Highlight **Internet Protocol (TCP/IP)** and click on the **Properties** button.



Step 4:

Select the **Use the following IP address** radio button.

Set the IP address to 192.168.1.68.X and subnet mask to 255.255.255.0, where X can be any number from 2 to 254.

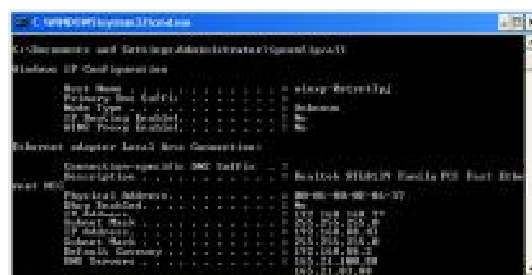


Step 5:

Click on the **OK** button to close all windows.

Step 6:

To verify that the IP address has been correctly assigned to your PC, go to the **Start** menu, **Accessories**, select **Command Prompt**, and type the command: `ipconfig/all`



```
C:\Documents\and\Settings\adrian\My Computer>ipconfig/all

Windows IP Configuration

Host Name . . . . . : eleng-PC00121
Primary DNS Suffix . . . . . : 
Node Type . . . . . : Hybrid
IP Routing Enabled . . . . . : No
WINS Proxy Enabled . . . . . : No

Ethernet adapter Local Area Connection 2:

   Connection-specific DNS Suffix . . . : 
   Description . . . . . : Realtek RTL8102L Family PCI Fast Eth
   Physical Address. . . . . : 80-00-00-00-00-00
   PNP Device ID . . . . . : {80}
   MAC Address . . . . . : 80-00-00-00-00-00
   IPv4 Address. . . . . : 192.168.1.10
   Subnet Mask . . . . . : 255.255.255.0
   Default Gateway . . . . . : 192.168.1.1
   DNS Servers . . . . . : 192.168.1.1
   NetBIOS over LLMNR . . . . . : Enabled
```

PC is now setup with a proper IP address to communicate with the access point.