

RT410W series

Station

Operation Manual

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2003/08/25

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Safety Notes

For Installation

- Use only the type of power source indicated on the marking labels.
- Use only the power adapter supplied with the product.
- Do not overload wall outlet or extension cords as this may increase the risk of electric shock or fire. If the power cord is frayed, replace it with a new one.
- Proper ventilation is necessary to prevent the product overheating. Do not block or cover the slots and openings on the device, which are intended for ventilation and proper operation. It is recommended to mount the product with a stack.
- Do not place the product near any source of heat or expose it to direct sunshine.
- Do not expose the product to moisture. Never spill any liquid on the product.
- Do not attempt to connect with any computer accessory or electronic product without instructions from qualified service personnel. This may result in risk of electronic shock or fire.
- Do not place this product on an unstable stand or table.

For Using

- Power off and unplug this product from the wall outlet when it is not in use or before cleaning. Pay attention to the temperature of the power adapter. The temperature might be high.
- After powering off the product, power on the product at least 15 seconds later.
- Do not block the ventilating openings of this product.
- When the product is expected to be not in use for a period of time, unplug the power cord of the product to prevent it from the damage of storm or sudden increases in rating.

For Service

Do not attempt to disassemble or open covers of this unit by yourself. Nor should you attempt to service the product yourself, which may void the user's authority to operate it. Contact qualified service personnel under the following conditions:

- If the power cord or plug is damaged or frayed.
- If liquid has been spilled into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally when the operating instructions are followed.
- If the product has been dropped or the cabinet has been damaged.
- If the product exhibits a distinct change in performance.

Warning

- This equipment must be installed and operated in accordance with provided instructions and a minimum 20 cm spacing must be provided between computer mounted antenna and person's body (excluding extremities of hands, wrist and feet) during wireless modes of operation.
- 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.

Caution

- Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.
-

Federal Communication Commission Interference 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 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 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 Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

ASKEY declare that RT410W-D92(LF) is limited in CH1~CH11 by specified firmware are controlled in USA.

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The antenna should be integral if the end device is intended to be operated in 5.15 ~ 5.25GHz frequency range.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example :Access Point). The final end product must be labeled in a visible area with the following: “Contains TX FCC ID: H8NRT410W”.

Manual Information That Must be Included

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the users manual of the end product which integrate this module.

The users manual for end users must include the following information in a prominent location “ IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter”.

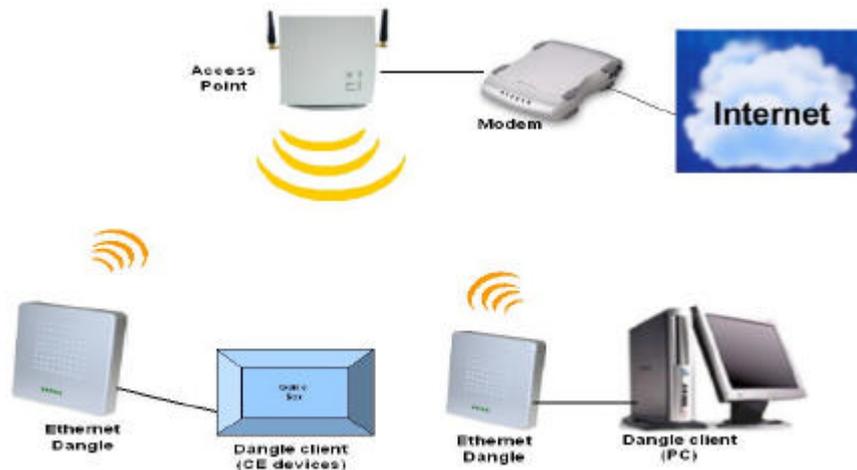
If the end product integrating this module is going to be operated in 5.15 ~ 5.25GHz frequency range, the warning statement in the user manual of the end product should include the restriction of operating this device in indoor could void the user’ s authority to operate the equipment.

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Chapter 1: Introduction

RT410W is 802.11a or 802.11b/g dual band wireless Ethernet dangle device. Below figure shows the general constitution of the system that uses the Ethernet dangle.



An Ethernet dangle is a device that connected to a client (e.g., PC, CE - Consumer Electronics devices) with one to one with Ethernet. The Ethernet dangle uses the MAC address of the dangle client / PC to communicate with remote 2.4/5 GHz wireless device (complied with IEEE 802.11a/b/g). The Ethernet dangle let your PC or CE (Game box, Set-top box) devices communicates with wireless access point device that extent your existing home/CE entertainment network to surf the Internet.

System Requirements

To use this device, you have a RJ-45 connector on your Ethernet network device. Except that, you will need a directly-connected computer or a wireless client to access its web-based configuration page for proper configuration. Please make sure that you have the following in your system.

- Windows 98/98SE/ME/2000/XP
- Internet Explore 5.0 or above
- Ethernet interface with 10/100-Base-T RJ-45 port
- TCP/IP protocol is set up

Unpacking

Check the contents of the package against the pack contents checklist below. If any of the items is missing, then contact the dealer from whom the equipment was purchased.

- This device
 - 12V Power Adapter and power cord
 - One Ethernet cable
 - Manual
-

Physical Outlook

Front Panel

It is equipped with five LEDs on the front panel as described in the table below (from left to right):

| LED | Color | Status | Description |
|--------|-------|-----------------|---|
| Active | White | Slowly Blinking | RF work normally |
| Status | RED | Blinking | Blinking when firmware upgrade, production test indicate. |
| | | Solid | Hardware Failed. |

Power: 12VDC power connector.

Chapter 2: Connection

LAN Connection

Attach one end of the Ethernet cable with RJ-45 connector to the LAN port on a computer, and the other end to this device directly or through a hub.

Connecting the power adapter

Please connect the Station to the power connector port of the Power Adaptor and the other end of the Power Adaptor to a power outlet.

Setting up a Host PC

To configure the Station via web browser, at least one properly configured PC must be connected to the network (either connected directly or through an external hub to the LAN port of the device). The host PC must meet the following requirements:

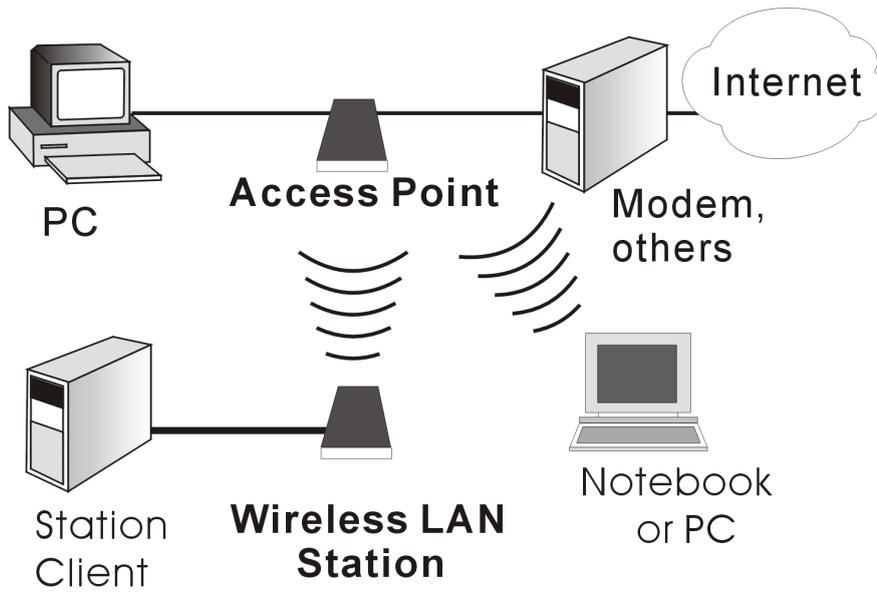
- With Ethernet network interface.
- Must have TCP/IP installed.
- With a web browser installed: Internet Explorer 5.x or later.

For Ethernet interface: With Ethernet network interface card installed.

For WLAN client: The SSID setting will be the last 6 codes of the MAC address of your Station.

Wireless Network Connection

This station is a device which connected to a client (such as PC or any CE device) with Ethernet. It uses the MAC address of the station's client and communicates with a wireless device (e.g., access point) which is complied with IEEE 802.11a,b,g. It communicates with a wireless device on Infrastructure and Ad-Hoc mode. The following picture shows a common constitution of the system that used a station.



Chapter 3: Configuration via Web Browser

Using the Web Configuration

Once your host PC is properly configured, start the web browser and type the URL **192.168.1.200** to enter the Web configuration page.

You will be prompted to enter username and password. By default, the username and password are left blank.

Note: The Station uses the **Apply** button to enable new settings. After the **Apply** button is clicked, your customized configuration will be stored and effective to the Station.

Home Page

The Station comes with the default IP address of 192.168.1.200 and subnet mask of 255.255.255.0.

MENU

Status

- [System Status](#)

Configuration

- [Wireless Setting](#)
- [Administration](#)
- [Firmware Update](#)

CloneMAC

Enabled
 Disabled

Wireless LAN

Mode 802.11a
 802.11a turbo
 802.11b
 802.11g

Station Overview Configuration

This page displays summary for the Station status.

System

| | |
|------------------|-------|
| Firmware Version | 0.0.4 |
|------------------|-------|

Wireless CONNECTED

| | |
|-------------------------------------|---------------------|
| Connection Mode | Access Point |
| Connected to SSID | wirelesslan |
| Using channel | 2442MHz (Channel 7) |
| MAC address associated | 00:90:96:54:63:CE |
| Current transmission rate (Mbits/s) | 5(Mbits/s) |
| Wireless Station RSSI Level (%) | 75 |
| Mac address of the wireless client | 00:C1:26:0A:69:2B |
| Encryption (WEP) | Disabled |

Network

| | |
|------------|-----------|
| IP Address | 10.3.1.60 |
| Netmask | 0.0.0.0 |

Status

This is the web page for the **system information**. It lists the firmware, MAC address and IP address for this Station.

| Station Overview Configuration | |
|--|---------------------|
| This page displays summary for the Station status. | |
| System | |
| Firmware Version | 0.0.4 |
| Wireless CONNECTED | |
| Connection Mode | Access Point |
| Connected to SSID | wirelesslan |
| Using channel | 2442MHz (Channel 7) |
| MAC address associated | 00:90:96:54:63:CE |
| Current transmission rate (Mbits/s) | 5(Mbits/s) |
| Wireless Station RSSI Level (%) | 75 |
| Mac address of the wireless client | 00:C1:26:0A:69:2B |
| Encryption (WEP) | Disabled |
| Network | |
| IP Address | 10.3.1.60 |
| Netmask | 0.0.0.0 |

Firmware Version: It displays the version number of this device's firmware.

Connection Mode: It displays the connection mode such as **Ad-Hoc** or **Infrastructure**.

Connected to SSID: It displays the SSID of the device that associated with this device.

Using Channel: It displays the frequency that you selected for this device.

MAC address associated: It displays the MAC address of the Ad-Hoc or the Infrastructure that this device has associated with. If you have enabled the **Clone MAC** setting, the MAC address shown here is the one associated to this device. Yet if you disable the **Clone MAC** setting, then the MAC address shown here will be the one of the station itself.

Current transmission rate (Mbits/s): It displays current data transmission rate.

Wireless Station RSSI Level(%): It displays the link quality for this device.

MAC address of the wireless client: It indicates the MAC address for the wireless card connecting to this device.

Encryption(WEP): It displays the settings status that you set on the wireless setting page.

IP Address: It displays the IP address of this device.

Netmask: It displays the Netmask of this device.

Configuration

Wireless Setting

To set the 802.11g security and encryption options for this AP, please open the Wireless Configuration page. Any new setting will become effective after the Station is rebooted.

| Wireless Configuration | |
|--|--|
| This page is for Wireless Settings. Reminder: After making the last change, click  button for changes to take effect. | |
| WIRELESS Settings | |
| Network type | <input checked="" type="radio"/> Infrastructure <input type="radio"/> Ad-Hoc |
| SSID | <input type="text" value="wirelesslan"/>  |
| Authentication Type | <input checked="" type="radio"/> Open System <input type="radio"/> Shared Key |
| Encryption (WEP) | <input checked="" type="radio"/> Disable <input type="radio"/> Enable |
| Key Length | <input type="text" value="40bits (WEP 64bits)"/> <input checked="" type="radio"/> Hexadecimal <input type="radio"/> Ascii Text |
| WEP Key 1 | <input type="text"/> |
| WEP Key 2 | <input type="text"/> |
| WEP Key 3 | <input type="text"/> |
| WEP Key 4 | <input type="text"/> |
| Default Key | <input type="text" value="Key 1"/> |
| Frequency (Channel) | <input type="text" value="SmartSelect"/> (used only with Ad-Hoc mode) |
| Data Rate | <input type="text" value="best"/> |
| Network Settings | |
| IP address mode | <input checked="" type="radio"/> Static IP <input type="radio"/> DHCP |
| IP Address | <input type="text" value="10.3.1.60"/> |
| Netmask | <input type="text" value="0.0.0.0"/> |
| Default Gateway | <input type="text" value="0.0.0.0"/> |
|   | |

Network Type: Select the one that the Station will be used to connect to.

The **Ad-Hoc** mode offers communication between wireless stations with the limited range of each other, eliminating the need for an AP. Without

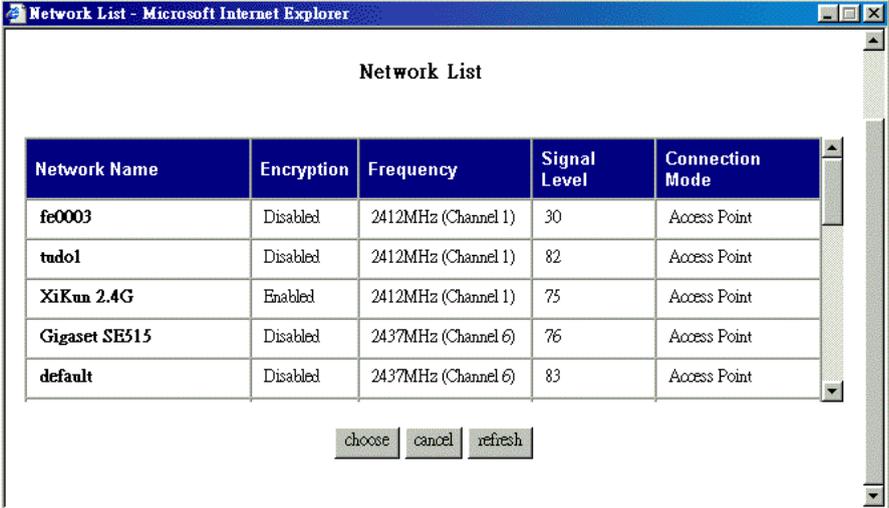
an AP connecting to a wired LAN, the clients in a **Ad-Hoc** network can only share resources with the peers but not be able to access resources on a wired network.

When this device is configured as a Station and operates in **Infrastructure** mode, it will associate with an available AP installed on Ethernet network. Thus the device that equipped with this Station can access to the wired LAN via the associated AP.

To successfully associate with an AP, this device must be configured in **Infrastructure** mode and use the same SSID and security settings with the AP. It does not need to configure a channel since it will automatically receive the channel assignment from the AP.

SSID:

Enter a network name with a maximum limit of 32 characters. Also, you can click **Scan** button to get a network list as below.



| Network Name | Encryption | Frequency | Signal Level | Connection Mode |
|---------------|------------|---------------------|--------------|-----------------|
| fe0003 | Disabled | 2412MHz (Channel 1) | 30 | Access Point |
| tudol | Disabled | 2412MHz (Channel 1) | 82 | Access Point |
| XiKun 2.4G | Enabled | 2412MHz (Channel 1) | 75 | Access Point |
| Gigaset SE515 | Disabled | 2437MHz (Channel 6) | 76 | Access Point |
| default | Disabled | 2437MHz (Channel 6) | 83 | Access Point |

From this dialog box, please choose any one that is available and click **Choose**. The name of the one that you selected will be shown on the SSID box.

Authentication Type:

This is a process in which the AP validates if wireless clients are qualified to access the AP's service. It happens prior to any wireless client can associate to an AP. The option – **Shared Key**, utilizes WEP capability to further verify if the wireless client is authorized to share this AP's resource. If the client has the wrong key or no key, it will fail the authentication and will not be allowed to associate with this AP.

Open System makes the authentication be done through a pseudo process, accepting all kinds of requests, and is mainly used in cases where connectivity is more important than security.

WEP Enabled:

Click **Enable** to enable the function setting box. Click **Disable** to close

this function.

WEP Key Lengths: Select the WEP mode for the WEP key function. You can choose **40, 104 or 128-bit** for your necessity. Choose the typing method of encryption key. You have to click either **Hexadecimal** digits or **ASCII** Text characters.

| | Hexadecimal | ASCII |
|---------------------------|-----------------------|---------------------|
| 40 bits (WEP 64 bits) | 10 hexadecimal digits | 5 ASCII characters |
| 104 bits (WEP 128 bit) | 26 hexadecimal digits | 13 ASCII characters |
| 128 bits (WEP 152 bit) | 32 hexadecimal digits | 16 ASCII characters |

WEP Key 1 to 4: Type the encryption key length and fill out WEP keys. The system allows you to type in 4 kinds of the WEP key.

Default Key: Select one of network key that you set on the Key boxes as default one. After you entering your WEP keys, you should select one of the four keys to encrypt the data before being transmitted. The AP always transmits data encrypted using the WEP key. The receiving station will use the key number to determine which key to use for decryption. If the key value does not match with the transmitting station, the decryption will fail. To ensure successful decryption, make sure to have your wireless stations set identical key tables.

Frequency (Channel): This function is active only in Ad-Hoc connection type. The frequency you selected in which the radio links are about to be established. Select a channel that you want. Usually the wireless clients will scan the whole operable channels and then select the desired communications channel automatically.

Data Rate: It decides the speed of data transmission. Choose any one of it by using the drop-down menu.

Network Settings

| | |
|-----------------|---|
| IP address mode | <input checked="" type="radio"/> Static IP <input type="radio"/> DHCP |
| IP Address | <input type="text" value="10.3.1.60"/> |
| Netmask | <input type="text" value="0.0.0.0"/> |
| Default Gateway | <input type="text" value="0.0.0.0"/> |

IP address mode: If your network had implemented a DHCP server to assign an IP to this AP, you can select **DHCP** as the IP Address mode. And you don't need to type the IP address below, subnet mask and gateway for the DHCP server will provide the required IP information for this device.

If you want to assign a static IP address to your AP, you can select **Static IP** option. Then you have to type in the IP address, subnet mask, gateway in the boxes respectively.

Note: When the DHCP function is enabled, you may need a third-party tool to identify the AP's IP address for the IP address assigned to the AP could come from a large DHCP address tool.

IP address: Type in the IP address that you got from your ISP.

Netmask: Type in the netmask address that you got from your ISP.

Default Gateway: Type in the gateway address that you got from your ISP.

Apply: Click this button to save and make the configuration effective.

Administration

This page allows you to change the username and password for some reason. Please open **Administration** web page to change it as you desired.

| Administration Configuration | |
|--|--------------------------|
| This page is for administration. | |
| Management Setup | |
| Username | <input type="text"/> |
| Password | <input type="password"/> |
| Re-enter Password | <input type="password"/> |
| <input type="button" value="Apply"/> <input type="button" value="Cancel"/> | |

Username: You can change the username for your necessity. Please type in the new username on this box.

Password: Please enter the new password on this box.

Re-enter Password: You have to retype the new password on this box for confirmation. After you click **Apply**, you have to enter the new password when you want to get into this web browser next time. This setting limits the web-based manager with the correct credentials. It is recommended that you enter the settings for both default values are blank.

Firmware Update

The Station supports the upgrading by using HTTP. To update the firmware that you get from your distributor, please click the **Upgrade** button. The following screen will appear.

| System Configuration | |
|-----------------------------------|---|
| This page is for Firmware Update. | |
| Firmware Upgrade | |
| Current Firmware Version | 0.0.4 |
| Locate New Firmware | <input type="text"/> <input type="button" value="Browse.."/> <input type="button" value="Upgrade"/> |

Follow the steps below to finish the firmware upgrade:

1. Download and unzip the new software file from vendor.
 2. In the **Locate New Firmware** field, click **Browse** to locate the upgrade file.
 3. Click the **Upgrade** button.
 4. Wait for the system to finish the updating.
-

Clone MAC

If you want to connect to more than one PC through this Station, choose **Disabled**. Otherwise, click **Enabled**.

CloneMAC

- Enabled
- Disabled

Wireless LAN Mode

Choose one of the wireless LAN mode listed below as the wireless communication way.

Wireless LAN Mode

- 802.11a
- 802.11a turbo
- 802.11b
- 802.11g

- 802.11a: The transmission speed is fast. Most countries support this function.
- 802.11a turbo: Faster than 802.11a, yet not all countries support this one.
- 802.11b: If the frequency rate is up to 2.4G, please choose this one.
- 802.11g: It supports the same speed with 802.11a. Yet it support different frequency rate with 802.11a.

There are two ways to take the mode change effective.

- After change the mode setting, unplug the power cord and re-plug it. Then restart the station.
 - After change the mode setting, go to **Wireless Setting Page** and click the **Reboot** button.
-

Appendix: Specifications

Frequency Bands

| Feature | Description |
|------------------------------|--|
| Frequency & bands | <p>2.4GHz : 2.412 to 2.462 GHz</p> <p>2.412GHz(1ch),2.417GHz(2ch),2.422GHz(3ch),2.427GHz(4ch),2.432(5ch),2.437GHz(6ch),2.442GHz(7ch),2.447GHz(8ch),2.452GHz(9ch),2.457GHz(10ch),2.462GHz(11ch)</p> <p>5GHz</p> <p><u>Japan</u>: 5.15 to 5.25 GHz</p> <p><u>USA</u>: Band I : 5.18GHz(36ch),5.20GHz(40ch),5.22GHz(44ch),5.24GHz,(48ch),</p> <p>Band II :5.26GHz(52ch),5.28GHz(56ch),5.30GHz(60ch),5.32GHz(64ch)</p> <p>The wireless bands are factory preset.</p> |
| Standard | <p>IEEE 802.11a/g</p> <p>IEEE 802.3 and IEEE 802.3u</p> |
| Wireless Speed (11a mode) | 54, 48, 36, 24, 18, 12, 9, 6 Mbps is automatically falling back |
| Wireless Speed (11g mode) | <ol style="list-style-type: none"> 802.11g OFDM standard. Data Rate: 54, 48, 36, 24, 18, 12, 9 and 6 Mbps. Interoperable with IEEE 802.11b DSSS 2.4 GHz compliant equipment. Data Rate: 11, 5.5, 2.2, and 1 Mbps |
| Ethernet Speed | 10/100 Mbps Half/Full duplex |

Range and Throughput

| Feature | Description |
|--|---|
| Distance Range (Indoor) (Estimate) | 54 Mbps @ 40 feet (10m) 6 Mbps @ 300 feet (90m) |
| Distance Range (Outdoor) (Estimate) | 54 Mbps @ 100 feet (30m) 6 Mbps @ 1000 feet (300m) |

Wireless Features

| Feature | Description |
|-----------------|---|
| 11a/g selection | Configuration from Web page or HTTP commands |
| SSID | Name of the WLAN group. The same SSID can form the WLAN group |
| Architecture | Infrastructure (default) or Ad-Hoc mode |
| Scan | Scan the available AP list on the air, so dongle can choose which AP to associated. Also, could provide by HTTP commands |
| Channel | What channels available are depends on regulatory domain |
| Data Security | <ol style="list-style-type: none">1. WEP Key Enable / Disable (Disabled by default)2. 64-bit, 128-bit, 152-bit WEP3. WEP key is able to set by ASCII characters or Hexadecimal digits4. WPA (PSK + TKIP) |
| Access Control | Allow one client device connect to dongle (Mac address filter). |
| Certification | Wi-Fi |

Network Feature

| Feature | Description |
|-----------------------------------|---|
| IP Address (Subnet Mask, Gateway) | <ol style="list-style-type: none">1. DHCP Client2. Manual IP / Default Fixed IP (192.168.1.20 / 255.255.255.0) |
| Management | HTTP Web-based GUI Telnet (CLI commands) HTTP commands while client didn't have GUI |
| Upgrade | Firmware upgradeable from Web page By HTTP commands |

Certification and Safety

| Feature | Description |
|---------------|-------------------|
| Japan | VCCI, TELEC, JATE |
| United States | FCC Part15 |
| Korea | MIC / RRL |
| European | CE Mark |



Physical Characteristics

| Feature | Description |
|----------------|--|
| PoE Port | One 8-pin connector, including power and Ethernet |
| LED(s) | 2 LEDs <i>Active</i> – Slowly blinking while RF work normally (White) <i>Status</i> – Diagnostic and system states (RED) |
| Dimensions | PWB 77 x 78 mm |
| Housing | Palm-size housing |
| Weight | TBD |
| Humidity | 10 to 90% non-condensing |
| Temperature | Operating: 0 to 50 Celsius |
| Power Adaptor | Input: 100~240 VAC, 50~60Hz Output: 12 VDC, 1A |