



USER'S MANUAL



Industrial Wi-Fi WLI2454G



1- Introduction

The **WLI-2454G** Wi-Fi interface is designed for applications requiring sturdiness and reliability in industrial environment. It is fully compliant with the **IEEE 802.11b** standard. With its RJ45 connector, it enables communication between industrial Ethernet devices (PCs, PLCs, I/Os, CNCs, displays, etc.) through a wireless Ethernet structure using the 2.4GHz band in DSSS. Its installation is very simple: Windows-based utility or Web browser for configuration and management. The 8-39Vdc power supply is connected through screw-cage plug connector. The compact metal case is designed for DIN rail mounting.

This product has been successfully tested with industrial Ethernet protocols (PLCs from Schneider, Siemens, Allen Bradley, ...).

2- Package contents

- 1 WLI2454G Access point
- 1 small 2dBi omnidirectional antenna
- 1 User's manual
- No driver needed (Setup with any Web navigator).

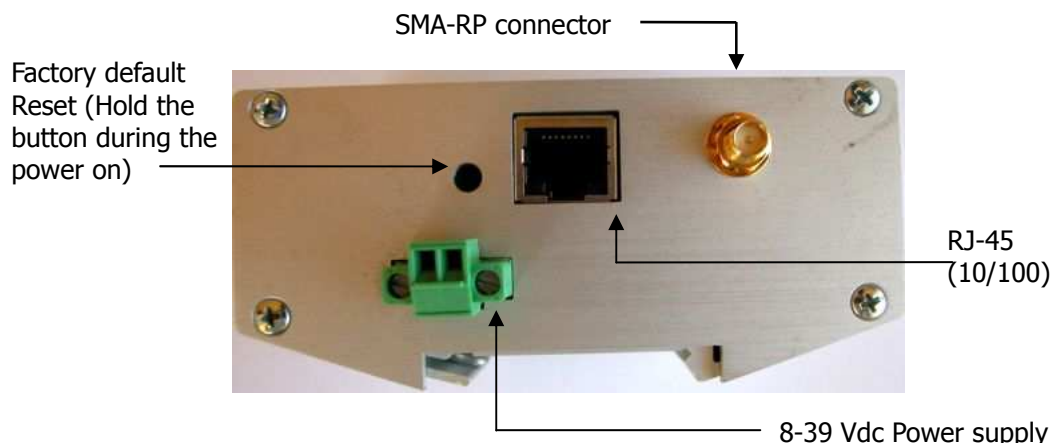
Hardware Installation



Read first :

Connect tightly the External dipole antenna on the antenna connector. A loose antenna will reduce the radiant energy or even lose it. In order to improve the RF signal radiation of the antenna, proper antenna placement is necessary. Try to place the antenna as high as possible to increase the coverage area. In case the WLI2454G is installed inside an instrument cabinet then use antenna cable to relocate the antenna outside the cabinet. A higher gain antenna may be then necessary to compensate the cable losses.

When the WLI2454G is working, do not touch the antenna.



- Connect the antenna on the SMA-RP.
- Plug the power supply (8-39 Vdc).
- Connect the WLI2454G (port RJ45) to your PC's Ethernet port via an Ethernet cross cable
- Turn the power ON

The basic installation procedure is the same in all operating modes

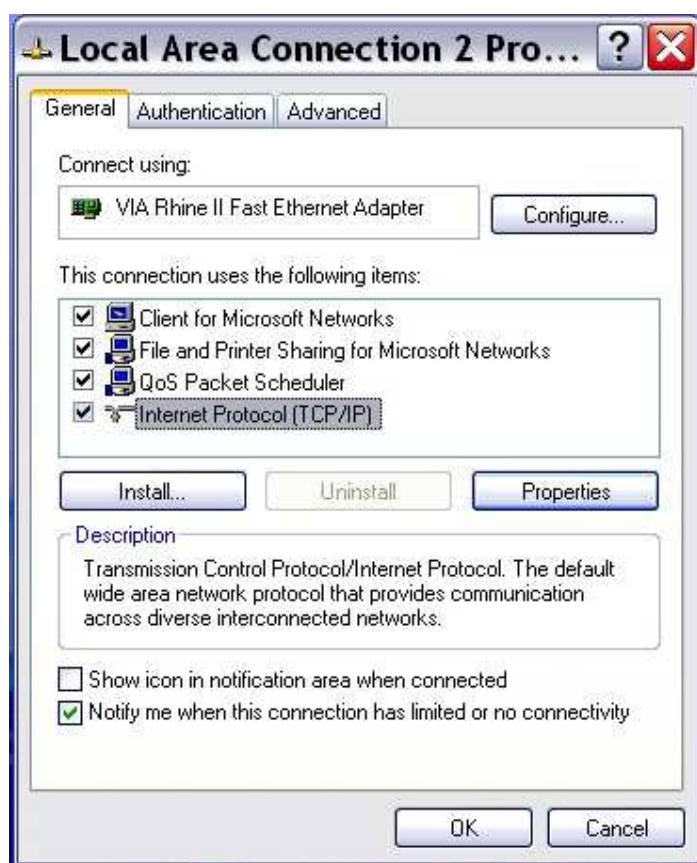
3- PC Configuration

3.1- TCP/IP Configuration

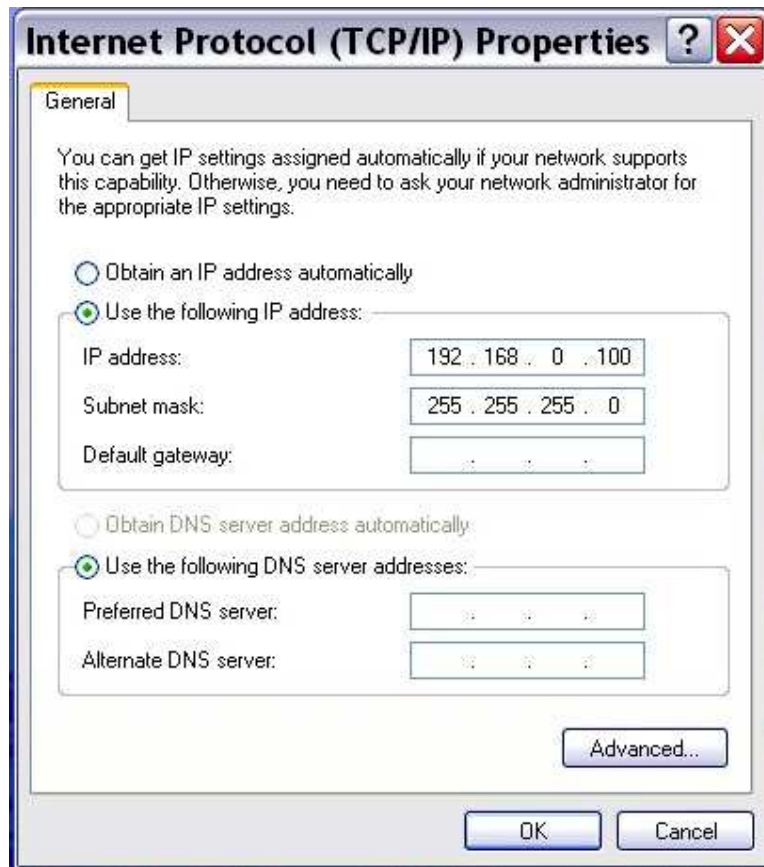
How to assign a static IP Address in Windows XP/2000?

Go to "Start" > Click on "Control Panel" > Double-click on "Network Connections" > Right-click on "Local Area Connections" > Click "Properties"

Highlight "Internet Protocol (TCP/IP)" and then click "Properties".



Select "Use the following IP address" in the Internet Protocol (TCP/IP) Properties window. Set your "IP address" and "subnet mask". (The IP Address must be within the same range as your WLI2454G. The IP address of your WLI2454G is 192.168.0.2. You can assign 192.168.0.100 for your computer. No two computers can have the same IP Address. Assign a subnet mask of (255.255.255.0.) and then Click "OK" button.



Click on the OK button, your PC's TCP/IP settings have been configured.

4- Web Configuration

4.1- Logging In

Connect your computer to the wireless station adapter either through wireless or wired connection. Please set a fixed IP address within the range of 192.168.0.X (X can't be 2), to your computer.

Activate your browser, then type this Station Adapter's address (e.g. <http://192.168.0.2>), in the Location (for IE) or Address field and press Enter.



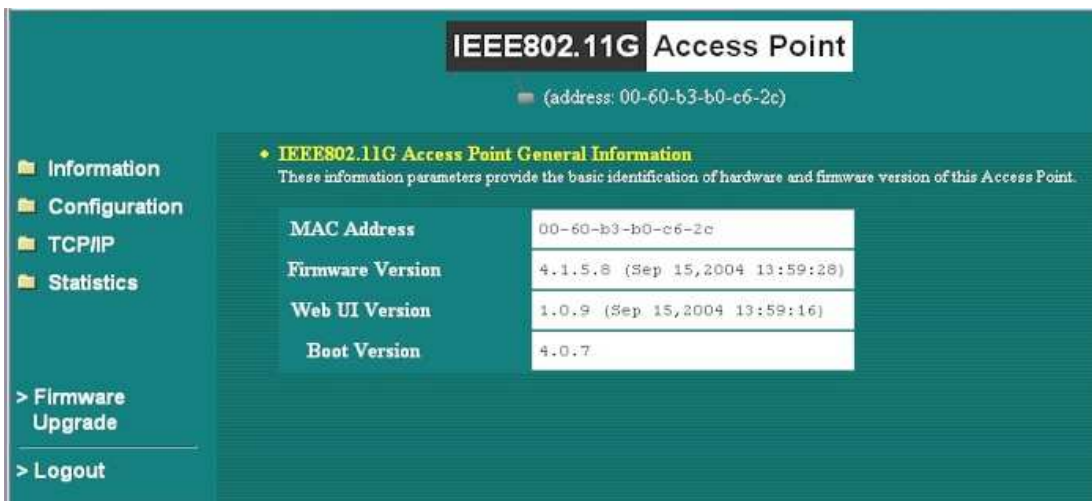
Key in the system password (the default setting is "default") and click on the "Login" button. You will see the main page.



The main window provides 5 items for you to monitor and configure the Wireless LAN Access Point: Information, Configuration, TCP/IP, Statistics and Firmware Upgrade.

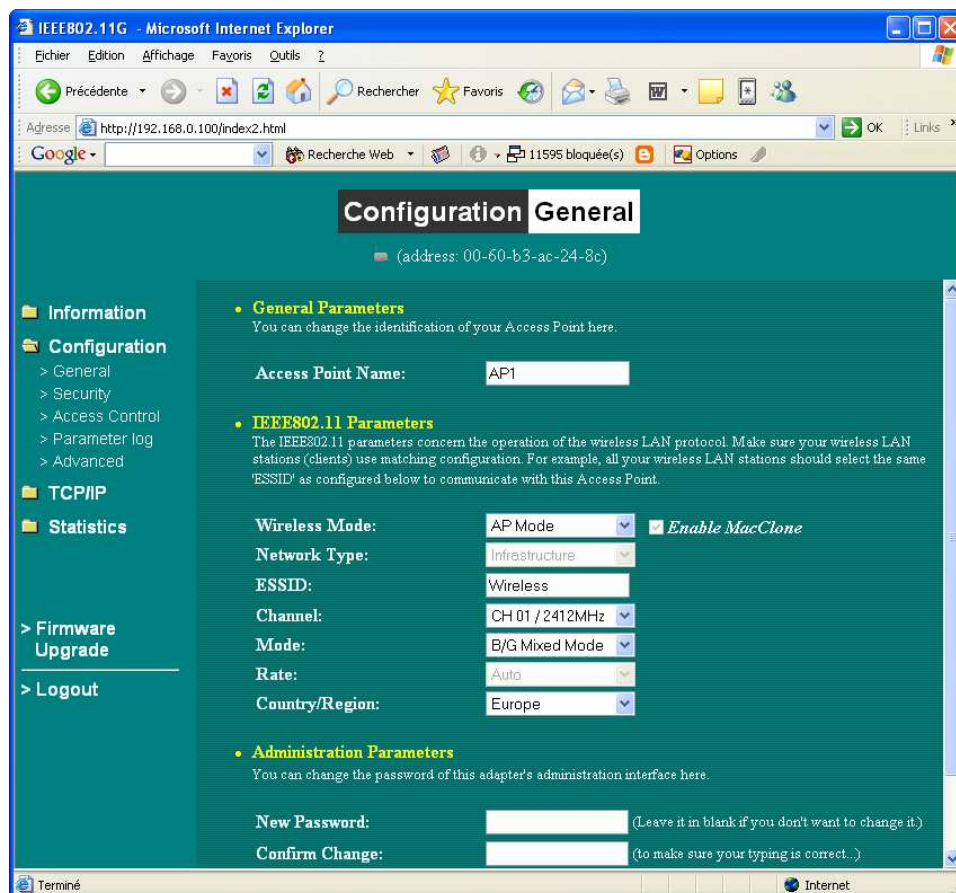
4.2- Information

This item shows the current information on the 802.11g Wireless WLI2454G such as MAC Address, Firmware Version, Web UI Version as well as Boot Version.



4.3- Configuration

4.3.1 General

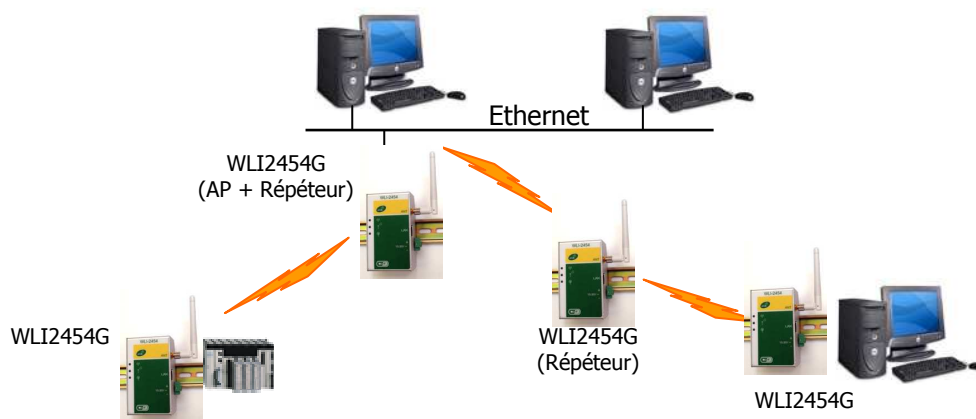


Access Point Name: In this field, you may enter any name. This will enable you to manage your WLI2454G more easily if you have multiple Access Points on the network. Besides, Access Point Name can be used to prevent you from forgetting an IP Address and fail to access the website. Try to type the nickname you like to identify the website, then press the button of "Apply" to reboot. Whenever you want to get back to the website again, just type the name you login. In this example typing "AP1" (instead of IP Address) in the location field will take you directly to the WLI2454G web configuration. Default name is "APac248c" ("AP" + the 6 last digits of the Mac address).

Wireless Mode: The default wireless operating mode of the WLI2454G is Access Point (AP) mode. To switch to Station or AP with repeating mode, select the desired mode and click Apply. The WLI2454G will reboot into the desired mode.

AP Mode: The system can be configured to work as a wireless network access point. Note that the WLI2454G AP acts only as a layer 2 bridge and does not act as a DHCP server. In other words, it does not supply dynamic IP addresses and instead relies on the network to supply them.

Station Mode: When configuring as a station mode, the device is now acting as a wireless client. The WLI2454G will associate to an AP within its range in infrastructure mode, or join with another WLI2454G device in Client mode in an ad-hoc network. The implementation can be shown as below:



In Station mode the WLI2454G can also function as a Bridge connecting multiple Ethernet devices via a switch. The client who first begins to send packet can associate with access point that responds based on the MAC clone functionality. The others use then the MAC address of the first client to join a wireless network. To enable Bridge function select the MacClone as shown below.

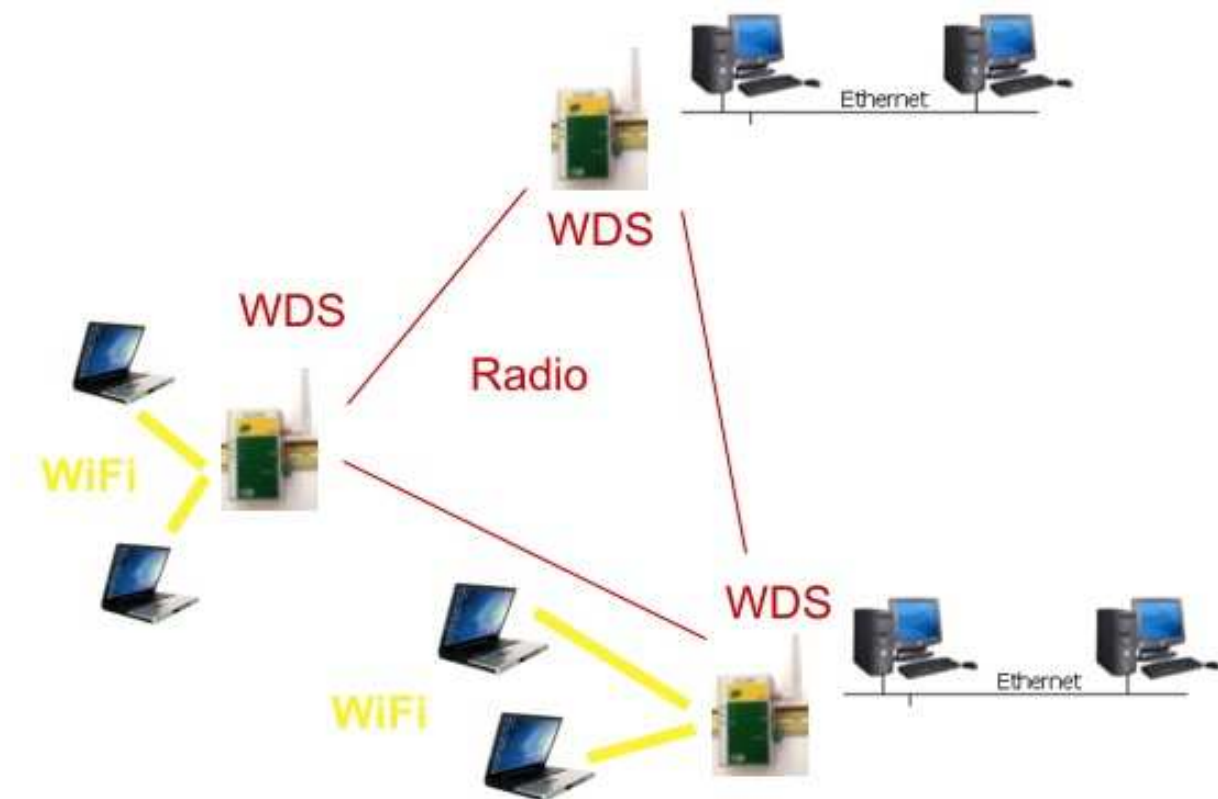


Note 1: A switch could connect with up to 8 different Ethernet devices. However, it would reduce the transmission rate if connected with too many units.

Note 2: If all clients do not support TCP/IP protocol, only the first client can connect to WLI2454G.

AP with repeating (WDS mode) :

In this mode, you can extend the range of a wireless network. Wireless clients can associate with the repeater to communicate with each client on your network. Note that all the Access Points' IP address must be set in the same network and make sure that Mode, SSID, Channel and encryption settings are set the same for all of your AP with repeating(s). The implementation can be shown as below:



Network Type: There are 2 network types for the wireless station adapter to operate. If you need to access company network or Internet via Access Point, select "Infrastructure". To set up a group of wireless stations for files and printer sharing, select "Ad-Hoc" (without Access Point). For Ad-Hoc operation, the same ESSID is required to set for the wireless stations.

ESSID: The ESSID is a unique ID used by Access Points and Stations to identify a wireless LAN. Wireless clients associating to any Access Point must have the same ESSID. The default ESSID is "Wireless". The ESSID can have up to 32 characters.

Channel: Select a clear and available channel as an operational channel for your wireless station adapter when it performs as Ad-Hoc mode. Default channel is 1.

Mode: There are three different wireless modes to operate, "B Only Mode", "G Only Mode", and "B/G Mixed Mode". In B/G Mixed Mode, the wireless station adapter is compatible with a mix of both 802.11g and 802.11b clients. You will see that the factory-set default "B/G Mixed Mod" will prove the most efficient. B Only Mode is compatible with 802.11b clients only. This mode can be used only if you do not allow any 802.11g clients to join a network. G Only Mode is compatible with 802.11g clients only. This mode can be used only if you do not allow any 802.11b clients to access to the network. To switch the mode, select the desired mode from the pull-down menu next to "Mode". Default mode is B/G Mixed Mode.

Rate: The wireless station adapter provides various data rate options for you to choose. Data rates options include Auto, 1, 2, 5.5, 11, 6, 9, 12, 18, 24, 36, 48 and 54. The default setting is Auto. Note that in AP modes the rate is always in Auto and it can not be changed.

Country/Region: Allows you to select country domain in case there is any chances that you would use wireless network in other countries. There are a total of 11 countries for you to select. They are Africa, Asia, Australia, Canada, Europe, France, Israel, Japan, Mexico, South America, and USA. Note that if your AP and station adapter are in different standards, please use the "Country/Region" item to switch the standards of the station adapter (For example, when set to client mode, if your Access Point is America standard but your station adapter is Japanese standard, you can pull down the "Country/Region" option to switch your station adapter from Japanese standard to American standard.). Default country in WLI2454G is USA. For France, choose "Europe" instead of "France"



Password: You may change the default password by entering the new password. Click "Apply" if you have made any changes.

4.3.2 Security

WEP Mode: This wireless adapter allows you to create up to 4 data encryption keys to secure your data from being eavesdropping by unauthorized wireless user. To enable the encryption, all devices on the network must share the same WEP key.

Disable: Allows the wireless station adapter to communicate with the Access Point without any data encryption.

WEP40: Requires the wireless station adapter to use data encryption with 40-bit algorithm when communicating with the Access Point.

WEP128: Allows the wireless station adapter to communicate with the Access Point with data 128-bit encryption algorithm.

WPA-PSK: Allows the wireless station adapter to communicate with the Access Point with a more secure data protection than the WEP. Here you can select the WPA with PSK mode to improve the data security and privacy during wireless transmission. The present WPA supplied with this adapter is used in a pre-shared key mode, which does not require an authentication (Radius) server.

Moreover, the wireless adapter provides three types of authentication services: Auto, Open System and Shared Key. The default authentication type is Auto. Open System requires no authentication since it allows any device to join a network without performing any security check. If you require higher security for wireless access, you may select Shared Key. Note that when Shared Key is selected, a WEP key is required and must be the same between the Access Point and client.

Configuration Security
(address: 00-60-b3-b0-c6-2c)

WEP Encryption

The access point provides an industrial-standard WEP (wired equivalent privacy) function which under are modes and key table to configure the WEP encryption.

Security Mode: WEP128

Authentication Type: Auto

WPA-PSK: (Input 8 - 63 characters or 64 hex)

Key Format: ☒ ASCII ☐ HEX

Passphrase:

Use	WEP Key
Key1: ☒	
Key2: ☐	
Key3: ☐	
Key4: ☐	

Key Format: Ten hexadecimal digits (0-9 or A-F) or five alphabets (ASCII characters, case-sensitive). alphabets are needed if 128-bit WEP is used. Example keys are: 1122334455 or abcde for 40-bit WEP.

new configuration, or to be unchanged.

For 40bit encryption you may choose:

ASCII: Enter 5 characters (case sensitive) ranging from "a-z", "A-Z" and "0-9" (e.g. MyKey).

Hex: Alternatively, you may enter 10 hexadecimal digits in the range of "A-F", "a-f" and "0-9" (e.g.11AA22BB33).

For 128bit encryption you may choose:

ASCII: Enter 13 characters (case sensitive) ranging from "a-z", "A-Z" and "0-9" (e.g. MyKey12345678).

Hex: Alternatively, you may enter 26 hexadecimal digits in the range of "A-F", "a-f" and "0-9" (e.g.00112233445566778899AABBCC).

After entering the WEP keys in the key field, select one key as active key. Alternatively, you may create encryption keys automatically by using Passphrase. From the Passphrase field, type a character string and click Generate. As you type, the wireless adapter will use an algorithm to generate 4 keys automatically. Select one key from the 4 WEP keys.

For WPA-PSK mode you may choose:

In the WPA-PSK field, you may enter 8-63 characters ranging from "a-z", "A-Z" and "0-9". If you require that access to the Internet or other wireless network services are allowed only when the pre-shared key of the WLI2454G matches that of the device you want to communicate. Click the "Apply" button on the Configuration tab to make the setting take effect.

See Appendix A for ASCII to Hex conversion table.

The screenshot shows the 'Configuration Security' page for the WLI2454G device. The left sidebar contains a navigation menu with 'Information', 'Configuration' (selected), 'TCP/IP', and 'Statistics'. Under 'Configuration', there are sub-links for 'General', 'Security', 'Access Control', 'Parameter log', and 'Advanced'. The main content area is titled 'WEP Encryption' and includes a description: 'The access point provides an industrial-standard WEP (wired equivalent privacy) function which under are modes and key table to configure the WEP encryption.' The settings are as follows:

- Security Mode:** WPA-PSK (dropdown menu)
- Authentication Type:** Open System (dropdown menu)
- WPA-PSK:** A text input field with a placeholder 'xxxxxxxxxx' and a note '(Input 8 - 63 characters or 64 hex)'.
- Key Format:** Radio buttons for 'ASCII' and 'HEX'.
- Passphrase:** A text input field with a 'Generate' button next to it.

Below these settings is a table for WEP keys:

Use	WEP Key
Key1: ☒	
Key2: ☐	
Key3: ☐	
Key4: ☐	

Below the table, a note states: 'Key Format: Ten hexadecimal digits (0-9 or A-F) or five alphabets (ASCII characters, case-sensitive alphabets are needed if 128-bit WEP is used. Example keys are: 1122334455 or abcde for 40-bit WEP)'. At the bottom, there are 'Apply' and 'Revert' buttons with the text 'new configuration, or to be unchanged.'

4.3.3 Access Control

When configuring the adapter with AP mode operation, the Access Control is a powerful

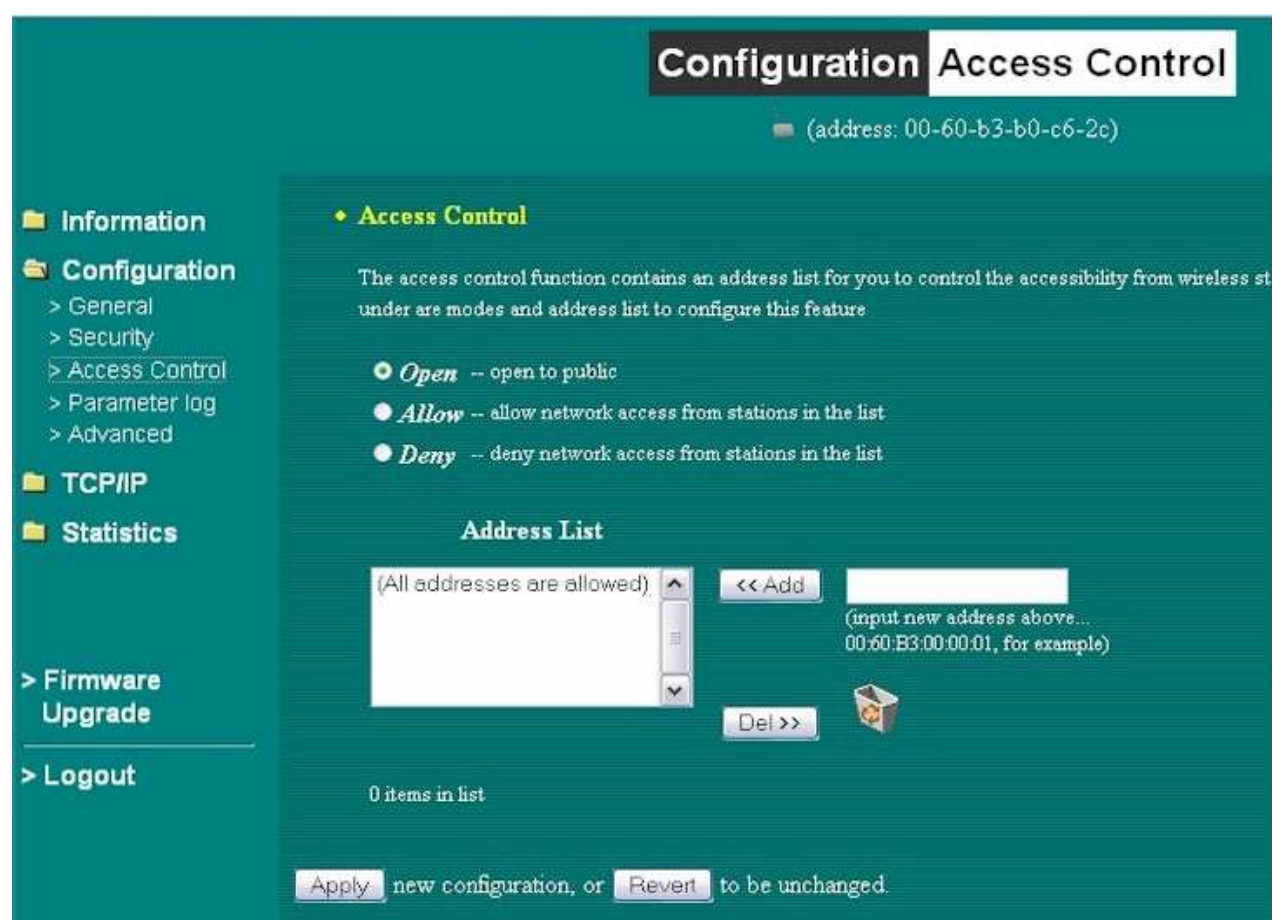
security feature that allows you to specify which wireless stations are allowed or denied in the list including:

Open: Allows any wireless station to access the network.

Allow: Any wireless station in this list attempting to access the network is allowed.

Deny: Any wireless station in this list will be denied access.

To add the Mac address of each wireless station on your network by entering the Mac address of the client you desire to add into the list. Click "Add", and then "Apply" to save the settings. To delete a Mac address from the list, select the Mac address you want to delete by clicking "Del" and then "Apply" to save the settings.



4.3.4 Parameter log

The Parameter log item allows you to save settings to the local hard drive by clicking "Save". When you click the "Browse" button, you can select the saved setting files. To click "Load", the saved settings will be loaded back.

Configuration

Parameter log

(address: 00-60-b3-b0-c6-2c)

◆ System Settings

Save Settings to Local Hard Drive:

Save

Load Settings From Local Hard Drive:

Browse...

Load

4.4 TCP/IP

You may assign a proper IP address to your wireless adapter manually. If you would like the wireless adapter to obtain the IP address from the DHCP server on your network automatically, enable the DHCP client function. Click the "Apply" button to make it effect.

TCP/IP

General

(address: 00-60-b3-b0-c6-2c)

Information

Configuration

> General

> Security

> Access Control

> Parameter log

> Advanced

TCP/IP

> General

Statistics

> Firmware Upgrade

> Logout

◆ TCP/IP Parameters For This Mode:

Management Port

DHCP Client

☒ Enable
 ☐ Disable

IP Address:

0.0.0.0

192.168.0.2

Subnet Mask:

0.0.0.0

255.255.255.0

Gateway:

0.0.0.0

0.0.0.0

Apply

new configuration, or

Revert

to be unchanged.

4.5 Statistics

4.5.1 General

This item will allow you to monitor the connection status when set to AP mode such as the Mac Address, LinkStatus, Rate Type as well as RX/TX from Ethernet packets.

Status and Statistics General			
(address: 00-60-b3-b0-c6-2c)			
• Status			
No.	MacAddress	Link Status	Type
• Statistics			
Ethernet Receive		Ethernet Transmit	
Packets	1162	Packets	553

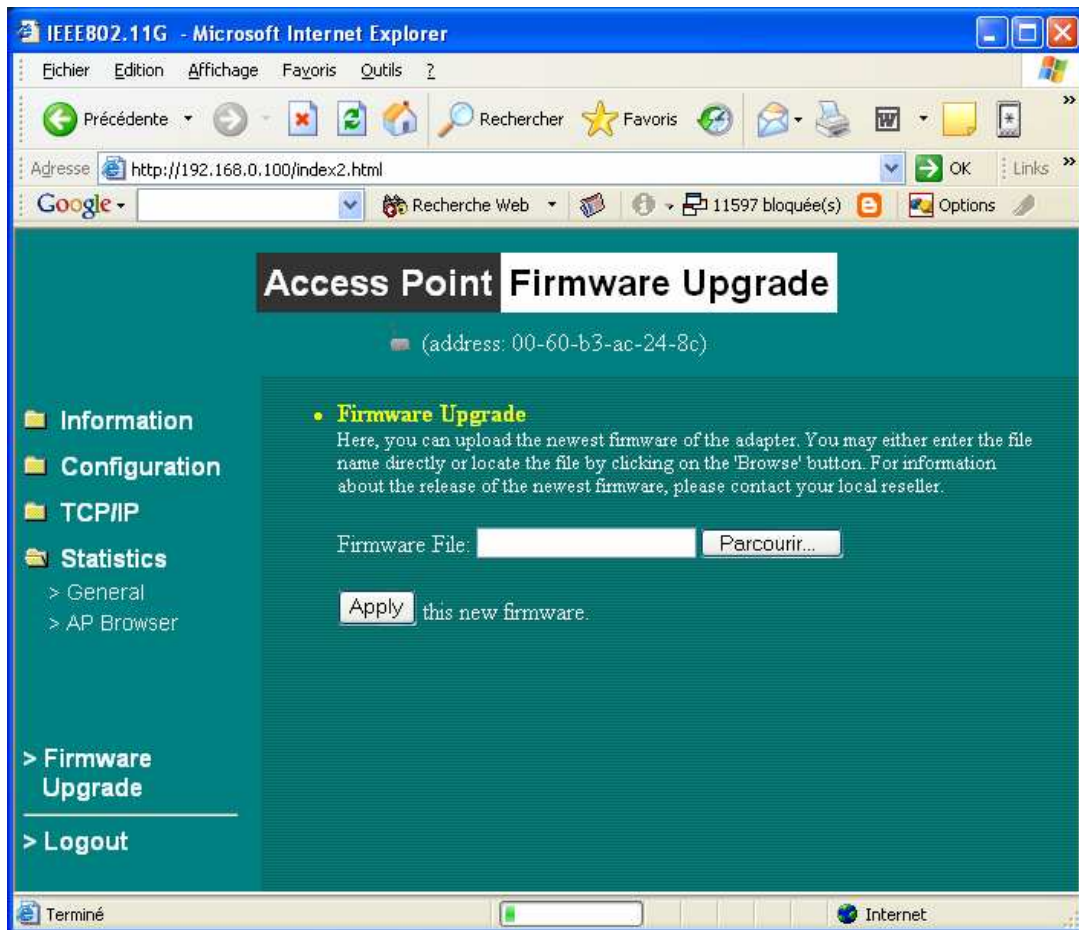
4.5.2 AP Browser

This AP Browser shows only when configuring your WLI2454G as Station mode. By clicking the "Refresh" button, the AP Browser will reload and display available Access Points around the working environment. Besides showing the BSSID of each Access Point, it also displays ESSID, Channel, Support Rate and Capability. To connect one of displayed Access Points, just select the Access Point you desire and then click the "Connect" button to make the connection.

Status and Statistics AP Browser					
(address: 00-60-b3-cb-fd-2b)					
Information Configuration TCP/IP Statistics > General > AP Browser > Firmware Upgrade > Logout	• Statistics				
	Select	BSSID	ESSID	Channel	Support Rate
	☐	000f3dab6761	ACM	1	1,2,5,11,6,9,12,18,24,36,48,54
	☐	0011208e61f0	libellowifi	1	1,2,5,11,6,9,12,18,24,36,48,54
	☐	00095bde46fa	MAZZOLINI	3	1,2,5,11,6,9,12,18,24,36,48,54
	☐	001185ffc221	Red Bull Internet Cafe	4	1,2,5,11,6,9,12,18,24,36,48,54
	☐	000f3d0b384d	Phoenix	6	1,2,5,11,6,9,12,18,24,36,48,54
	☐	000f3dab6752	ACM2	6	1,2,5,11,6,9,12,18,24,36,48,54
	☐	0006252552b5	linksys	6	1,2,5,11
	☐	0008a176d156	RACK	10	1,2,5,11
	☐	000f2423de30	APL2	10	1,2,5,11,6,9,12,18,24,36,48,54
	☐	0008a152d03d	SALON	10	1,2,5,11
	☐	0050fcb8a2e	default	11	1,2,5,11,6,9,12,18,24,36,48,54
	Refresh Connect				

4.6 Firmware Upgrade

Here, you can upload the latest firmware of the wireless adapter. You may either enter the file name in the entry field or browse the file by clicking the "Browse" button. Then click the "Apply" button to begin to upgrade the process.



5- Technical support

5.1- Leds

<i>LED Definition</i>	<i>Activity</i>	<i>Description</i>
PWR 	Green	Power enabled
WLAN 	Green	Off: No Wireless LAN traffic activity
		On: Wireless LAN traffic activity.
LAN 	Green	Off: No Ethernet traffic activity
		Flashing: Wired LAN traffic activity
		On: Connect to the Ethernet.

5.2- Reset Button

Press the button for about 10 seconds until all LED's go off. This action will restore to the factory default settings of the WLI2454G and enable you to configure the WLI2454G via web again. Besides, this is also used when you forget the password.

**Factory Default Configuration :
@ IP 192.168.0.2 Password : « default »**

HARWARE SPECIFICATIONS	
CPU / MAC	Marvell 88W8510H
Flash / RAM	Flash 1 Mo, RAM 4 Mo
LAN	1 x 10/100 Base Tx RJ45 LAN ports (Auto-MDI / MDI-X)
CPU / MAC	Marvell 88W8510H
Leds & Misc	Power supply Ethernet Wi-Fi Default Factory reset button
Casing	IP54 - DIN Rail mounting Dimensions : 105x60x50 mm Weight : 250 g
Power supply	External 8-39 Vdc (bornier à vis) – Not included Consumption ~ 200 mA@12 Vdc
Standards	IEEE 802.11b (2.4GHz) IEEE 802.11g 7.1 draft compliant IEEE 802.3/ 802.3u (Ethernet 10/100-BaseTX)
RADIO SPECIFICATIONS	
Radio Interface	Frequency Band : 2,4 GHz (2,412 ~ 2,483 GHz) IEEE 802.11b/g Transmit output Power: 17 dBm (19dBm with the standard antenna) Receive sensitivity : -65dBm @ 54Mbps / -80dBm @ 11 Mbps / -87dBm @ 1Mbps SMA-RP female connector (Reversed Polarity) Supplied with short omnidirectional dipole antenna
FIRMWARE	
Modes	AP / SA / WDS
DHCP Client	Client only
NAT/ NATP	Supported
PPPoE	Supported
SNMP :	Supported – MIB V2
RADIUS Server	Supported
Routing and VPN	Not supported
Spanning Tree Protocol	Supported (802.1d)
IAPP	Yes (Pre 802.11f)
Encryption	WEP40 (64 bits) / WEP128 (128 bits) / WPA-PSK
MAC Address filter	Yes
Management	Web management
802.1x	Yes
TKIP	Yes
802.11d	Yes (regulatory domain selection)
ENVIRONNEMENT	
	Operating temperature range: -10 / +55°C Storage temperature range: -20 / +70°C Country of origin: FRANCE

LIMITED WARRANTY

This Warranty constitutes the sole and exclusive remedy of any buyer or reseller's equipment and the sole and exclusive liability of the supplier in connection with the products and is in lieu of all other warranties, express, implied or statutory, including, but not limited to, any implied warranty of merchantability of fitness for a particular use and all other obligations or liabilities of the supplier.

In no even will the supplier or any other party or person be liable to your or anyone else for any damages, including lost profits, lost savings or other incidental or consequential damages, or inability to use the software provided on the software media even if the supplier or the other party person has been advised of the possibility of such damages.

The following are special terms applicable to your hardware warranty as well as services you may use during part of the warranty period.

Duration of Hardware Warranty: One Year

Replacement, Repair or Refund Procedure for Hardware:

If your unit needs a repair or replacement, return it to your dealer/distributor in its original packaging. When returning a defective product for Warranty, always include the following documents:

- The Warranty Repair Card
- A copy of the invoice/proof of purchase
- The RMA Report Form (To receive a Return Materials Authorization form (RMA), please contact the party from whom you purchased the product).

Upon proof-of-purchase we shall, at its option, repair or replace the defective item at no cost to the buyer.

This warranty is contingent upon proper use in the application for which the products are intended and does not cover products which have been modified without the reseller's approval or which have been subjected to unusual physical or electrical demands or damaged in any way.

Please complete the information below and include it along with your products.

Name:	
Title:	
Company:	
Telephone:	
Fax:	
Email:	
City/State/Zip code:	
Country:	
Product Name:	
Serial Number:	
Invoice Date:	
Product Description:	

If you have any further questions, please contact your local authorized reseller for support.