**COMPEX**
networks@work

# Quick Install Guide

## Wireless 54Mbps
## Outdoor Access Point

## WPP54

# Table of Contents

# 1: Introduction

## Introduction to WPP54G multi-SSID firmware version

The WPP54AG Wireless-AG 54Mbps XR™ Outdoor Access Point is a high-performance AP designed for enterprise and outdoor users. WPP54AG is compatible with IEEE 802.11a/b/g and supports high-speed data transmission of up to 54Mbps at in both the 2.4GHz and the 5GHz frequency bands. The in-built Atheros® Super-AG technology provides higher throughput in the 802.11a 5GHz band versus 802.11g's congested 2.4GHz band and the ability to operate in at least 19 non-overlapping channels as compared to the 3 non-overlapping channels on 802.11g standard. This equips WPP54AG with network robustness, stability and wider network coverage. Housed in a weatherproof casing, WPP54AG is designed to withstand any outdoor climatic conditions, making it the ideal solution for outdoor applications.

Designed with an external SMA connector and the ability to operate in 6 different modes, the WPP54AG can be used for a wide variety of wireless applications. The integrated WDS (Wireless Distribution System) feature creates a virtually larger wireless network infrastructure by linking up other access points. WPP54AG also includes a DHCP server that automatically assigns IP addresses to wireless clients. For the ultimate multimedia experience, WPP54AG includes the WMM™ (QOS) feature which allows media files to be delivered over the network more efficiently,

Connecting to a wireless LAN without adequate security measures generally opens up your network to any casual snoopers. To protect your privacy, WPP54AG is armed with many enhanced wireless security features such as Wi-Fi Protected Access (WPA), MAC Address Filtering, IEEE 802.1x Authentication, 64/128-bit WEP (Wired Equivalent Privacy) and Advanced Encryption Standard (AES) encryption feature to ensure privacy for the heterogeneous mix of users within the same wireless LAN, while maintaining full access to the establishment's resources.

WPP54AG also incorporates unique features from Compex such as – the Parallel Broadband feature that allows bandwidth aggregation and fail-over redundancy capability. It uses Spanning Tree Protocol (STP) that provides the wireless network with extra redundancy and reliability. The network will auto-reconfigure when there are changes to the network connections and the Pseudo VLAN feature that enables the creation of wireless isolated nodes or workgroups of wireless clients to increase network privacy in a public access wireless LAN.

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# Introduction to WPP54G non multi-SSID firmware version

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# Packaging Content

Actual product appearance may slightly differ depending on the hardware version.
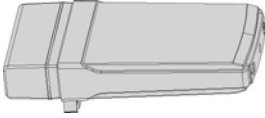
1 x WPP54 unit                                    1 x Mounting Bracket

2 x Self-taping Screws                            1 x Product CD

1 x Read-Me-First Note

# Network Application

Compex WPP54 allows point-to-point communication between different buildings. It enables you to bridge wireless clients that are kilometres apart (e.g. within 100 metres between two buildings) while unifying the networks. In this scenario, you may configure two Compex WPP54 units to perform transparent bridging between two buildings.

# 2: Let's Get Going-Hardware Setup

You can install your Compex WPP54 either onto the wall or mount it on a pole. The two mounting methods 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 WPP54 also lets you fine-tune parameters such as the transmit power to achieve the best results.

## Overall Setup of Compex WPP54

The diagram below shows the overall setup of Compex WPP54. You may need to install a lightning arrestor to protect your outdoor AP from the lightning.
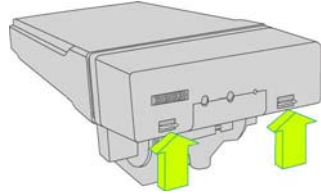
Please note that you can power up your PoE Injector ONLY AFTER you had completely connected all the devices. For detail installations, kindly proceed to the coming up section.
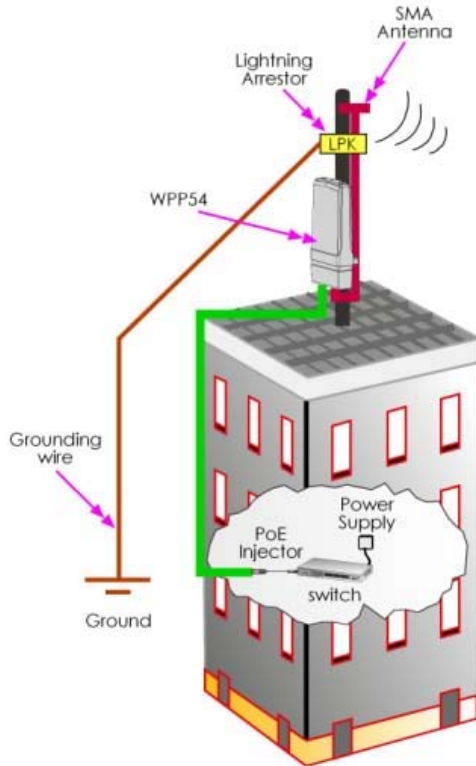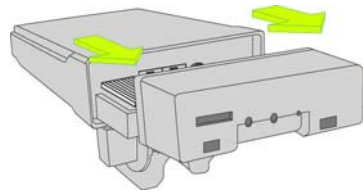
## Method 1: Mounting on the Wall

### Step 1

Hold the catches upward as shown in the figure.
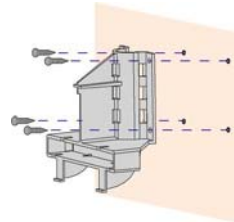
### Step 2

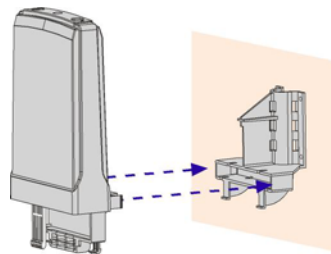While still holding the catches, push the Compex WPP54 cover outwards.

### Step 3

Align the bracket to the wall, Use the bracket as a guideline, make 4 marks and drill 4 holes into the wall.

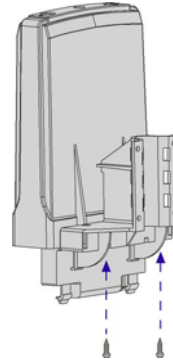Next, secure the brackets to the wall as shown in the figure on the right.

### Step 4

Align the main unit of Compex WPP54 with the bracket to attach them as shown in the figure.

## Step 5

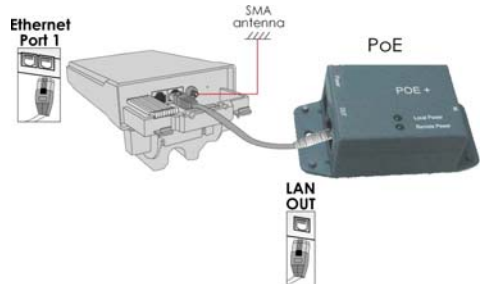Next, fasten two screws that are provided in the packaging to secure the main unit to the bracket.

## Step 6

Connect one end of an RJ45 Ethernet cable to the LAN OUT port of the Injector and the other end to Ethernet Port 1 of Compex WPP54.

Maximum length of the RJ45 Category 5 cable is 100 metres.

Next, connect your SMA antenna (not provided) to the SMA reverse connector.

## Step 7

Connect the RJ45 Ethernet cable attached to the Compex PoE Injector (not provided) to a network device, such as to a switch or to the PC you will use to configure the WPP54.



## Step 8

Connect the power adapter in the Compex PoE kit (not provided) 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 WPP54 is receiving power through the Compex PoE Injector and that connection between Compex WPP54 and your network has been established.
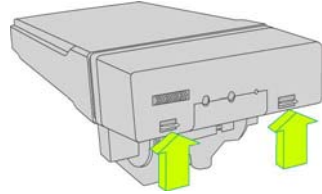
**Note:**
Please use the power adapter in the Compex PoE kit (not provided). Using a power adapter with a different voltage rating will damage this product.
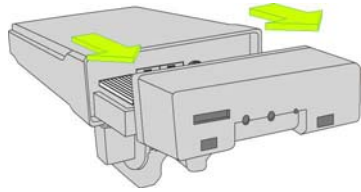
## Method 2: Mounting on the Pole

### Step 1

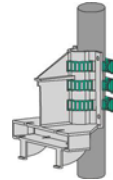Hold the catches upward as shown in the figure.

### Step 2

While still holding the catches, push the Compex WPP54 cover outwards.
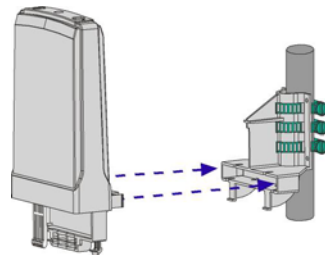
### Step 3

Use metal straps (not provided) to secure the bracket to the pole. Place the straps through the slots in the bracket and then around the pole. Tighten the straps.

### Step 4

Align the main unit of Compex WPP54 with the bracket to attach them as shown in the figure.

## Step 5

Next, fasten two screws that are provided in the packaging to secure both the main unit to the bracket.

## Step 6

Connect one end of an RJ45 Ethernet cable to the LAN OUT port of the Injector and the other end to Ethernet Port 1 of Compex WPP54.

Maximum length of the RJ45 Category 5 cable is 100 metres.

Next, connect your SMA antenna (not provided) to the SMA reverse connector.

## Step 7

Connect the RJ45 Ethernet cable attached to the Compex PoE Injector (not provided) to a network device, such as to a switch or to the PC you will use to configure the WPP54.



## Step 8

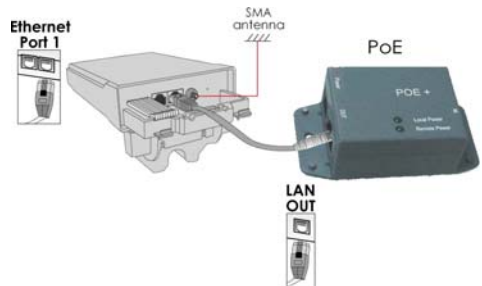Connect the power adapter in the Compex PoE kit (not provided) to the main electrical supply and the power plug into the socket of the injector.

Now, turn on your power supply. Notice that the **POWER** LED has lighted up. This indicates that the WPP54 is receiving power through the Compex PoE Injector and that connection between Compex WPP54 and your network has been established.

**Note:**
Please use the power adapter in the Compex PoE kit (not provided). Using a power adapter with a different voltage rating will damage this product.

# 3: Access to Web-based Interface

Once you have connected WPP54 to the management PC, there are two methods to access to the web-based Interface of Compex WPP54:

◆ **Through our Compex Utility – uConfig**
You can access to the web-based interface directly without having to change the IP address of your PC.

◆ **Through the web browser**
First, you will need to assign a static IP address to your PC, such as 192.168.168.xxx, where x can be any value from 2 to 254, so that it is in the same subnet as Compex WPP54.

## Method 1: Access to the Web interface with uConfig

Compex has developed a powerful uConfig utility that provides hassle-free direct access to the web-based configuration page.

**Step 1**

Insert the Product CD into your CD-ROM drive.

**Step 2**

From the **Utilities** section, select to install the **uConfig** utility to your hard disk. When the utility has been installed, double-click on the **uConfig** icon.

## Step 3

The program will prompt you with the following message. Click on the **Yes** button to proceed.
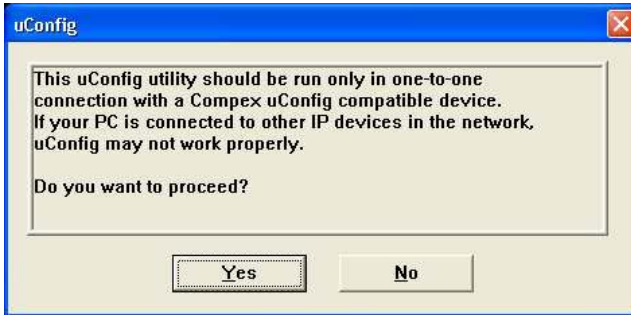


## Step 4

Select *Compex WPP54* in the **Compex Products List** section and click on **Open Web** button.
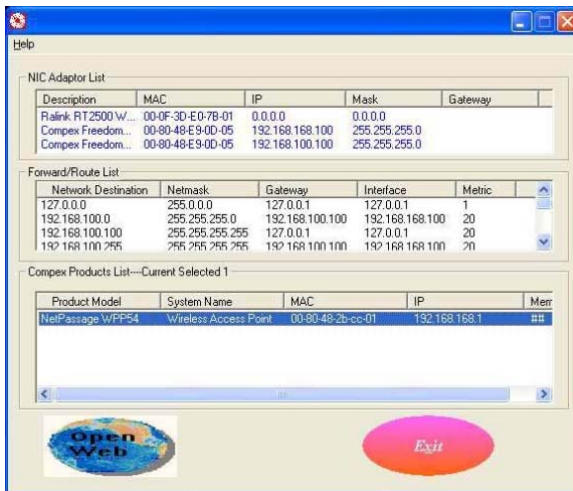
## Step 5

Next, the system will prompt you not to close the uConfig program until you wish to exit your web-based interface. Click **Ok** button to proceed.
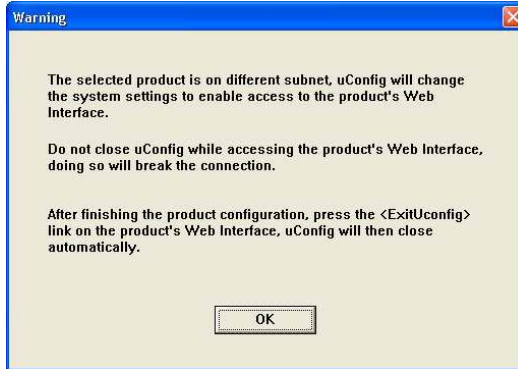


## Step 6

At the authentication page, click on the **Log On**! Button to enter the main configuration page.

You will then reach the home page of Compex WPP54's web-based interface.



**Note:**
For full instructions on how to configure WPP54, please refer to the User's Manual provided in the Product CD.

## Method 2: Access to the Web interface manually

You can enter the IP address of the unit manually in the address bar of your Internet browser. But you will first need to change the IP address of your PC so that it is in the same subnet as your WPP54.

**Note:**
For full instructions on how to configure WPP54, please refer to the User's Manual provided in the Product CD.

# 4: TCP/IP Configuration

Once the hardware has been set up, you need to assign an IP address to your PC so that it will be in the same subnet as Compex WPP54. By default, Compex WPP54's IP address is 192.168.168.1; and its subnet mask is 255.255.255.0. You need to configure your PC's IP address to 192.168.168.xxx; and its subnet mask is 255.255.255.0, where xxx can be any number from 2 to 254 excluding 1. Simply follow the procedures stated below to configure the TCP/IP settings of your PC.

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

Please note the following instructions are based on Windows 98.
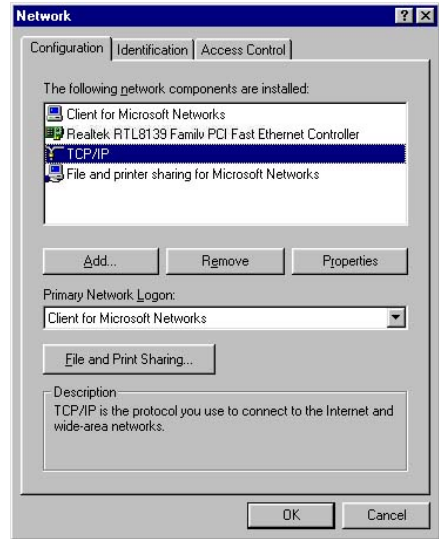
Step 1

From your desktop, choose **Network Neighborhood** icon and select **Properties**.

Step 2

Choose the network adapter that you are using, right click and select **Properties**.
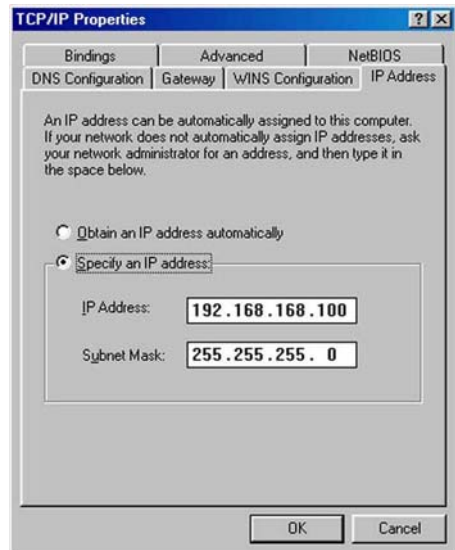
## Step 3

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

**Network**

Configuration | Identification | Access Control

The following network components are installed:

- Client for Microsoft Networks
- Realtek RTL8139 Family PCI Fast Ethernet Controller
- TCP/IP
- File and printer sharing for Microsoft Networks

Add...        Remove        Properties

Primary Network Logon:

Client for Microsoft Networks

File and Print Sharing...

Description
TCP/IP is the protocol you use to connect to the Internet and wide-area networks.

OK        Cancel

## Step 4

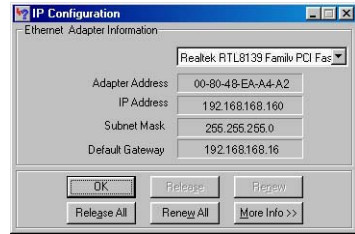Select the radio button for **Specify an IP address**.

Enter the IP Address and Subnet Mask as 192.168.168.xxx and 255.255.255.0, where xxx can be any number from 2 to 254, except for 1. In this example, we are using 192.168.168.160 as the static IP Address.

**TCP/IP Properties**

Bindings | Advanced | NetBIOS
DNS Configuration | Gateway | WINS Configuration | IP Address

An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.

○ Obtain an IP address automatically

● Specify an IP address:

IP Address:     192.168.168.100

Subnet Mask:    255.255.255.  0

OK        Cancel

## Step 5

In order to check if the IP address has been assigned correctly to your PC, simply go to the **Start** menu, select **Run,** and enter the command *winipcfg*.

Select your respective Ethernet Adapter from the drop down list and click **OK**.

IP Configuration
Ethernet Adapter Information

Realtek RTL8139 Family PCI Fas ▼

Adapter Address    00-80-48-EA-A4-A2
IP Address         192.168.168.160
Subnet Mask        255.255.255.0
Default Gateway    192.168.168.16

OK    Release    Renew
Release All    Renew All    More Info >>

## For Windows XP/2000

## Step 1

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

## Step 2

Go to your network adapter icon, right click and select **Properties**.

**LAN or High-Speed Internet**

Local Area Connection
Disable
**Status**
Repair

Bridge Connections

Create Shortcut
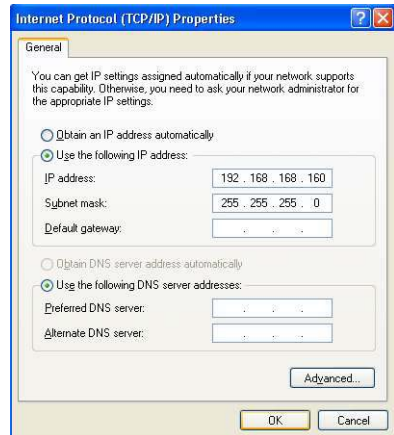Delete
Rename

Properties

8

## Step 3

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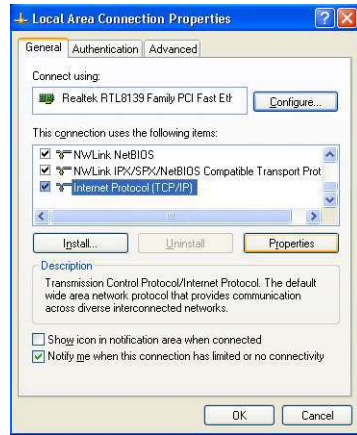


## Step 4

Select the radio button for **Use the following IP address**. Enter the IP Address and Subnet Mask as 192.168.168.xxx and 255.255.255.0, where xxx can be any number from 2 to 254, except for 1. In this example, we are using 192.168.168.160 as the static IP Address.
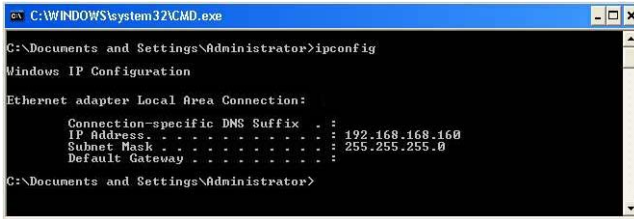


## Step 5

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

## Step 6

Next, in order to check if the IP address has been correctly assigned to your PC, go to **Start** menu, **Accessories**, select **Command Prompt** and type the command *ipconfig/all*.

```
C:\WINDOWS\system32\CMD.exe

C:\Documents and Settings\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 192.168.168.160
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . :

C:\Documents and Settings\Administrator>
```
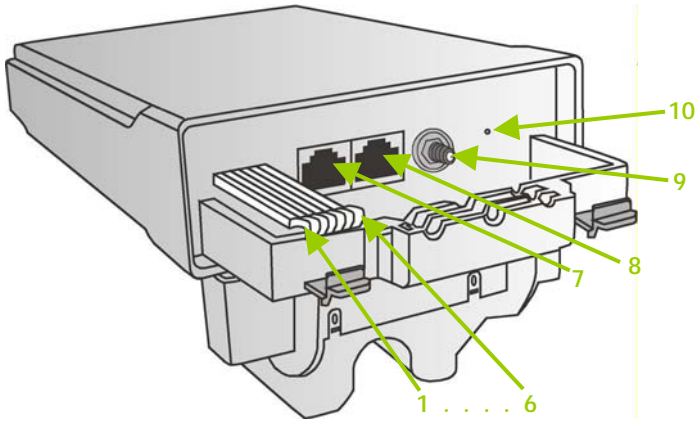
**Further Information References**

For more details on the WPP54 configuration, please refer to the User's Manual in the accompanying Product CD.

This document may become superseded, in which case you may find its latest version from the website at http://www.compex.com.sg

# 5: Panel Views and Descriptions



| | Features | Status and Indication | |
|---|---|---|---|
| **1** | **POWER LED** | Steady Red | Power is supplied to the device. |
| | | Off | No power is supplied to the device. |
| **2** | **10 ACT LED** | Steady Red | The respective port has successfully connected to Compex WPP54AG. |
| | | Blinking | The respective port is transmitting or receiving data. |
| | | Off | No connection is established. |
| **3** | **100 ACT LED** | Steady Red | The respective port has successfully connected to Compex WPP54AG. |
| | | Blinking Red | The respective port is transmitting or receiving data. |
| | | Off | No connection is established. |

|   | **Features** | **Status and Indication** | |
|---|---|---|---|
| **4** | **WLAN LED** | Steady Red | Wireless interface up and running. Ready for operation. |
|   |   | Flashing Red | Activity is detected in the wireless network. |
| **5** | **WAN Conn LED** | Flashing Red | Data transmission at WAN connection. |
| **6** | **DIAG LED** | Flashing Red | It indicates that the firmware is corrupted. |
| **7** | **Ethernet Port 2** | Connection for computer with NIC (Network Interface Card) or Ethernet network card. | |
| **8** | **Ethernet Port 1** | Connection for computer with NIC (Network Interface Card) or Ethernet network card.<br><br>If using PoE, connect to Port 1. | |
| **9** | **Reverse SMA connector** | Connect to SMA antenna. | |
| **10** | **Reset button** | To reboot, press once.<br><br>To reset password, press and hold the button for 5 seconds before releasing it.<br><br>To restore the factory default settings, press and hold the button for 8 seconds before releasing it. | |

# 6: Technical Specifications

| | |
|---|---|
| **Safety and Electromagnetic Conformance** | ◆ FCC Part 15 SubPart B and SubPart C (for wireless module)<br>◆ EN 300 328-2<br>◆ EMC CE EN 301 489 (EN300 826)<br>◆ EN 55022 (CISPR 22)/EN 55024 Class B<br>◆ EN 61000-3-2<br>◆ EN 61000-3-3<br>◆ CE EN 60950<br>◆ EN 301 893 |
| **Industrial Standards (WPP54G)** | ◆ IEEE 802.11b<br>◆ IEEE 802.11g |
| **Industrial Standards (WPP54AG)** | ◆ IEEE 802.11a<br>◆ IEEE 802.11b<br>◆ IEEE 802.11g |
| **Data Rates** | ◆ Network speeds dynamically shift between 1,2, 5.5, 11, 12, 18, 24, 36, 48, 54 Mbps |
| **Frequency Range (WPP54G)**<br>**IEEE 802.11b:**<br>**IEEE 802.11g:** | <br>2.4 ~ 2.4835 GHz<br>2.4 ~ 2.497 GHz |
| **Frequency Range (WPP54AG)**<br>**IEEE 802.11a:**<br>**IEEE 802.11b:**<br>**IEEE 802.11g:** | <br>5.180 ~ 5.825 GHz<br>2.4 ~ 2.4835 GHz<br>2.4 ~ 2.497 GHz |

| Wireless Operation Modes (multi-SSID firmware) | ◆ Access Point Mode<br>◆ Client Mode<br>◆ Wireless Routing Client<br>◆ Gateway Mode<br>◆ Wireless Adapter Mode<br>◆ Transparent Client Mode<br>• Repeater Mode |
|---|---|
| Wireless Operation Modes (non multi-mSSID firmware) | ◆ Access Point<br>◆ Access Point Client<br>◆ Point to Point<br>◆ Point to Multiple Point<br>• Wireless Routing Client<br>• Gateway<br>• Wireless Adapter |
| Security | ◆ 64 - bit / 128 - bit WEP<br>◆ WPA-Enterprise, WPA-Personal, WPA2-Enterprise, WPA2-Personal, WPA-Auto-Enterprise, WPA-Auto-Personal<br>  - Per Node<br>  - Per Group<br>◆ Tagged VLAN<br>◆ IEEE 802.1x – TLS, TTLS, PEAP, EAP-SIM |
| Network Interface | 2x RJ45 10/100 Mbps auto-negotiating Ethernet port |
| Modulation | ◆ BPSK (Binary Phase Shift Keying)<br>◆ QPSK (Quadrature Phase Shift Keying)<br>◆ CCK (Complementary Code Keying)<br>◆ 16 QAM, 64 QAM (Quadrature Amplitude Modulation) |
| Radio Technology | ◆ DSSS (Direct Sequence Spread Spectrum)<br>◆ OFDM (Orthogonal Frequency Division Multiplexing) |

| Output Power (WPP54G) | |
|---|---|
| **IEEE 802.11b:** | 20 dBm |
| **IEEE 802.11g:** | 20 dBm |
| **Output Power (WPP54AG)** | |
| **IEEE 802.11a:** | 18 dBm |
| **IEEE 802.11b:** | 20 dBm |
| **IEEE 802.11g:** | 20 dBm |
| **Operating Distance (WPP54G)** | |
| **IEEE 802.11b:** | 300 m (11Mbps outdoor)<br>30 m (11Mbps) |
| **IEE 802.11g:** | 80 m (11Mbps outdoor)<br>15 m (11Mbps indoor) |
| **Operating Distance (WPP54AG)** | |
| **IEEE 802.11a:** | 85 m (54Mbps outdoor)<br>20 m (54Mbps indoor) |
| **IEEE 802.11b:** | 300 m (11Mbps outdoor)<br>30 m (11Mbps) |
| **IEE 802.11g:** | 80 m (11Mbps outdoor)<br>15 m (11Mbps indoor) |
| **SNMP** | ◆ SNMP (RFC 1157)<br>◆ MIB II (RFC 1213) |
| **LED Indicators** | ◆ Power<br>◆ Diagnostic<br>◆ LAN Link/Activity<br>◆ WLAN Link/Activity |
| **IP Addressing** | All classful/classless subnets |
| **Management** | ◆ Telnet Command Console<br>◆ HTTP Web Management |
| **IP Addressing** | All Classful/Classless Subnets |
| **Built-in DHCP Server** | Yes |
| **DHCP Reservation** | By MAC address |

| Operating Channels | ◆ 11 Channels: US and Canada<br>◆ 13 Channels: Europe<br>◆ 14 Channels: Japan |
|---|---|
| Load Balancing | Parallel Broadband (in Gateway mode) |
| Fail-Over Redundancy | Parallel Broadband (in Gateway mode) |
| Virtual Server | IP and Port Forwarding, De-Militarised Zone |
| IP Packet Filtering | ◆ Time-based<br>◆ By TCP Port<br>◆ By Source IP |
| IP Routing | Static & Dynamic Entry |
| VPN Client Pass-Through | PPTP, IPSec |
| Configuration Interface | Web-based Configuration Menu |
| Profile Backup & Restore | Yes |
| Firmware Upgrade | Yes |
| Power Requirements: | 48V 15W 802.11af PoE |
| Environment Requirements<br>Operating Temp:<br>Storage Temp:<br>Operating Humidity: | 0ºC to 70ºC<br>-15ºC to 70ºC<br>5% to 95% RH<br>Humidity (RH – Relative Humidity) |

**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 into 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:

(1)     This device may not cause harmful interference, and

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

Products that contain a radio transmitter are labeled with FCC ID and may also carry the FCC logo.

*Caution:* Exposure to Radio Frequency Radiation.

To comply with the FCC RF exposure compliance requirements, the following antenna installation and device operating configurations must be satisfied:

a.     For configurations using the integral antenna, the separation distance between the antenna(s) and any person's body (including hands, wrists, feet and ankles) must be

b.     at least 2.5cm (1 inch).

For configurations using an approved external antenna, the separation distance between the antenna and any person's body (including hands, wrists, feet and ankles) must be at least 20cm (8 inch).

| |
|---|
| The transmitter shall not be collocated with other transmitters or antennas.<br>**ICES 003 Statement**<br>This Class B digital apparatus complies with Canadian ICES-003. |
| **DECLARATION OF CONFORMITY:** *Compex, Inc. declares that the product:*<br>**Product Name:** Compex Wireless-G 54Mbps Outdoor Access Point<br>**Model No.:** WPP54 conforms to the following Product Standards:<br>This device complies with the Electromagnetic Compatibility Directive (89/336/EEC) issued by the Commission of the European Community. Compliance with this directive implies conformity to the following European Norms (in brackets are the equivalent international standards.)<br>**Electromagnetic Interference (Conduction and Radiation)**: EN 55022 (CISPR 22)<br>**Electromagnetic Immunity**: EN 55024 (IEC61000-4-2,3,4,5,6,8,11)<br>**Low Voltage Directive:** EN 60 950: 1992+A1: 1993+A2: 1993+A3: 1995+A4: 1996+A11:1997.<br>*Therefore, this product is in conformity with the following regional standards:* **FCC Class B:** following the provisions of FCC Part 15 directive; **CE Mark:** following the provisions of the EC directive. |
| **DECLARATION OF CONFORMITY:** *Compex, Inc. declares that:*<br>The wireless cards in this product comply 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 European Norms (in brackets are the equivalent international standards.)<br>**EMC Standards:** FCC Part 15: Subpart B, Subpart C, Subpart E; CE: EN 301 893, EN 300 328-2, EN 300 826 (EN 301 489-17)<br>*Therefore, this product is in conformity with the following regional standards:* **FCC Class B** - following the provisions of FCC Part 15 directive; **CE Mark** - following the provisions of the EC directive. |
| **Manufacturer's Name:** Compex, Inc.<br>**Address:** 840 Columbia Street, Suite B<br>Brea, CA 92821, USA |

| WARRANTY REGISTRATION CARD | [M-0088-V2.4C] | |
|---|---|---|
| Register via the Internet at http://www.cpx.com or http://www.compex.com.sg | | |

| To activate the warranty, please complete this card and return to Compex within ninety 90 days from the date of purchase. |
|---|
| Please e-mail this warranty card to **support@compex.com.sg**. |

| Product: | Purchase Date: | Model: | Serial No: |
|---|---|---|---|
| Name: | | E-mail: | |
| Company: | | | |
| Address: | | | |
| Postal/Zip Code: | | Country: | |
| Phone:  (        ) | | | |

**Note:**
For purchases within U.S.A and Canada, please fax to Compex, Inc. at (714) 482 0332

For purchases outside U.S.A and Canada, please fax to Compex Systems Pte Ltd at (65) 6280-9947

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