

ZyAIR B-420

Wireless LAN Ethernet Adapter and Bridge

Quick Installation Guide

Version 3.50

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1 Introducing the ZyAIR

The ZyAIR B-420 is an IEEE 802.11b compliant wireless LAN Ethernet Adapter and Bridge. The driven-free installation process makes setup easy. You can also configure your ZyAIR through the user-friendly web configurator or SMT menus. The key features of the ZyAIR are PoE (Power over Ethernet) and the ability to function in bridge mode. See your *User's Guide* for more details on all ZyAIR features.

2 Hardware Connections

2.1 Top Panel and Connections



Figure 1 ZyAIR Top Panel

LABEL	DESCRIPTION
ETHERNET	For initial configuration use an Ethernet cable to connect a computer (with an Ethernet card) to this port. The port is auto-negotiating (can connect at 10 or 100Mbps) and auto-crossover (automatically adjusts to the type of Ethernet cable you use (straight-through or crossover)).
RESET	You only need to use this button if you've forgotten the ZyAIR's password. It returns the ZyAIR to the factory defaults (password is 1234 and LAN IP address 192.168.1.11). Refer to the <i>User's Guide</i> .
POWER 12VDC	Connect the end of the included power adaptor to this power socket. You only need to connect the external power adaptor if you are not using PoE. If you simultaneously use both PoE and the external power adaptor, the ZyAIR will draw power from the PoE connection only. <div style="text-align: center; background-color: #cccccc; padding: 5px;">Use only the included power adaptor.</div>

2.2 The LED Display

The **PWR** and the **ZyAIR** LEDs turn on when the power is connected. The **ETHN** LED turns on, if the **ETHERNET** port is properly connected. See the *ZyAIR Front Panel LED Description* table for more information.



Figure 2 ZyAIR Front Panel

Table 1 ZyAIR Front Panel LED Description

LED	COLOR	STATUS	DESCRIPTION
BDG (SYS)	Red	Blinking	The ZyAIR is not ready or rebooting.
	Green	On	The ZyAIR has a successful wireless bridge connection.
		Off	The ZyAIR does not have a wireless bridge connection.
ZyAIR	Blue	Blinking (Breathing)	The ZyAIR is sending/receiving data through the wireless LAN.
		On	The ZyAIR is ready, but is not sending/receiving data
ETHN	Green	On	The ZyAIR has a successful 10Mbps Ethernet connection
		Blinking	The ZyAIR is sending/receiving data.
	Orange	On	The ZyAIR has a successful 100Mbps Ethernet connection
		Blinking	The ZyAIR is sending/receiving data.
		Off	The ZyAIR does not have a 10/100Mbps Ethernet connection.
PWR	Green	On	The ZyAIR is receiving power from power supply
	Orange	On	The ZyAIR is receiving power over the Ethernet cable
		Off	The ZyAIR is not receiving power

To access the ZyAIR, configure your computer's IP address and subnet mask to be in the same range as the ZyAIR's.

The default IP address of the ZyAIR is 192.168.1.11.

3 Set Up Your Computer's IP Address

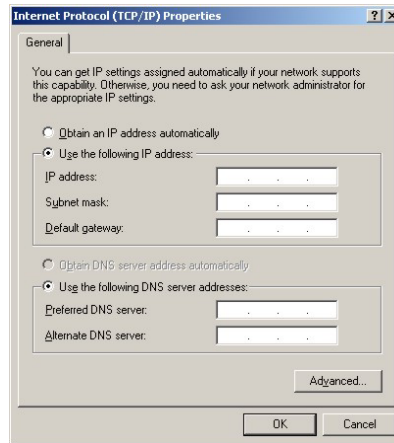
Skip this section if your computer's IP address is already in the range of 192.168.1.11 ~ 192.168.1.254 with subnet mask 255.255.255.0.

Your computer must have a network card and TCP/IP installed. TCP/IP should already be installed on computers using Windows NT/2000/XP, Macintosh OS 7 and later operating systems. Refer to the *Setting Up Your Computer's IP Address* appendix in the *User's Guide* for other operating systems.

3.1 Windows 2000/NT/XP

1. In Windows XP, click **start, Control Panel**. In Windows 2000/NT, click **Start, Settings, Control Panel**.
2. In Windows XP, click **Network Connections**.
In Windows 2000/NT, click **Network and Dial-up Connections**.
3. Right-click **Local Area Connection** and then click **Properties**.
4. Select **Internet Protocol (TCP/IP)** (under the **General** tab in Win XP) and click **Properties**.
5. The **Internet Protocol TCP/IP Properties** screen opens (the **General** tab in Windows XP).

Configure your computer to use a static IP address, select **Use the following IP address** and fill in the IP address (192.168.1.1 to 192.168.1.254, except 192.168.1.11) and **Subnet mask** (255.255.255.0) fields.



6. Leave the **Preferred DNS sever** and **Alternate DNS server** fields blank if you do not know the IP address(es) of the DNS server.
7. Click **OK** to close the **Internet Protocol (TCP/IP) Properties** window.
8. Click **OK** to close the **Local Area Connection Properties** window.

3.2 Testing the Connection to the ZyAIR

1. Click **Start**, **(All) Programs**, **Accessories** and then **Command Prompt**.
2. In the **Command Prompt** window, type "ping 192.168.1.11" followed by a space and the IP address of the ZyAIR (192.168.1.11 is the default).
3. Press **ENTER**. The following screen displays.

```
C:\>ping 192.168.1.11

Pinging 192.168.1.11 with 32 bytes of data:

Reply from 192.168.1.11: bytes=32 time=10ms TTL=254
Reply from 192.168.1.11: bytes=32 time<10ms TTL=254
Reply from 192.168.1.11: bytes=32 time<10ms TTL=254
Reply from 192.168.1.11: bytes=32 time<10ms TTL=254

Ping statistics for 192.168.1.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 2ms

C:\>
```

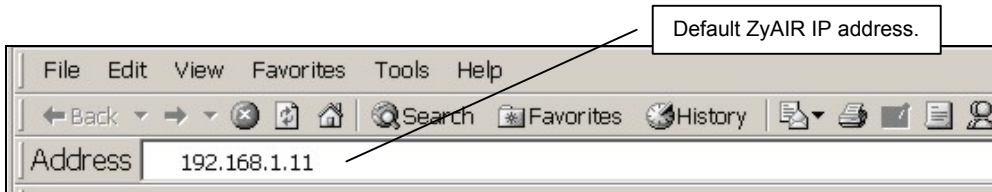
Your computer can now communicate with the ZyAIR via the **ETHERNET** port.

4 Accessing the ZyAIR

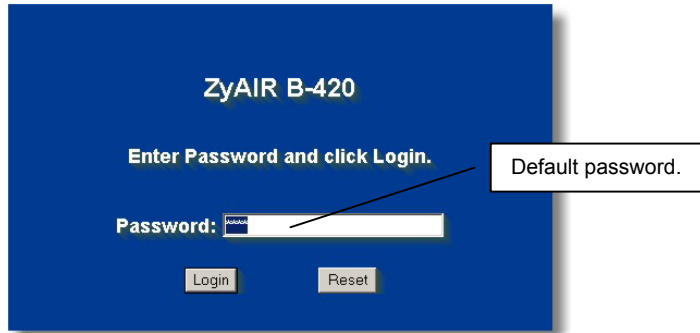
The *Quick Installation Guide* shows you how to use the web configurator Wizard and introduces the ZyAIR's key features. See your *User's Guide* for configuration details and background information on all ZyAIR features using the SMT (System Management Terminal) and web configurator.

4.1 Accessing the ZyAIR via the Web Configurator

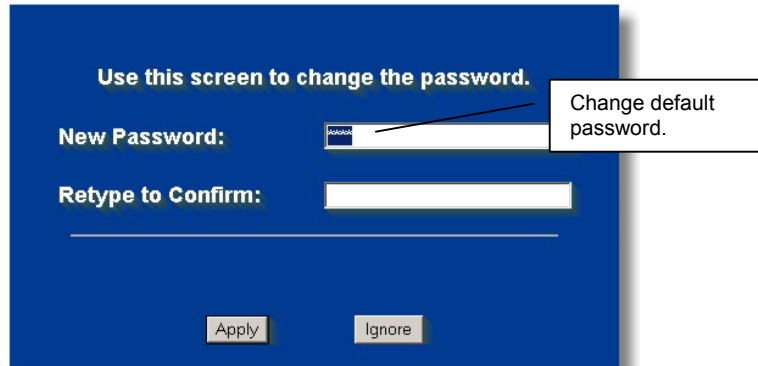
1. Launch your web browser. Enter "192.168.1.11" as the web site address.



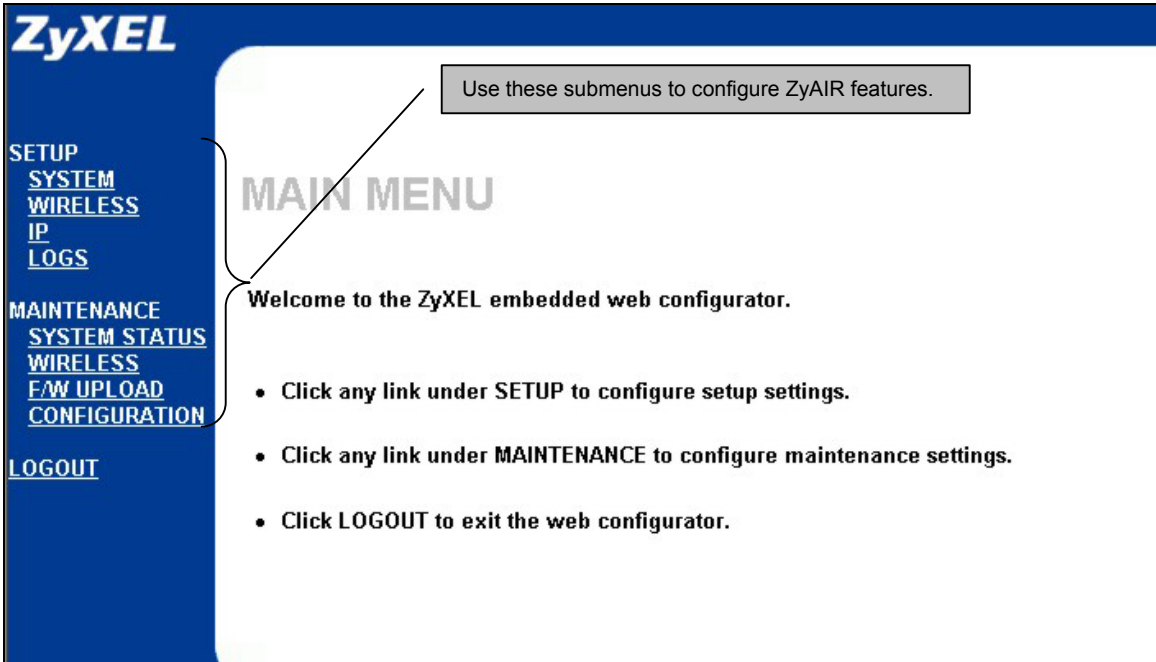
2. The default password (“1234”) is already in the password field (in non-readable format). Click **Login** to proceed to a screen asking you to change your password. Click **Reset** to revert to the default password in the password field.



3. It is highly recommended you change the default password! Enter a new password, retype it to confirm and click **Apply**; alternatively click **Ignore** to proceed to the **MAIN MENU** screen if you do not want to change the password now.



4. You should now see the web configurator **MAIN MENU** screen.



The ZyAIR automatically times out after five minutes (default) of inactivity. Simply log back into the ZyAIR if this happens.

4.2 Common Screen Command Buttons

The following table shows common command buttons found on many web configurator screens.

Back	Click Back to return to the previous screen.
Apply	Click Apply to save your changes back to the ZyAIR.
Reset/Cancel	Click Reset or Cancel to begin configuring this screen afresh.

5 Key Features

This section shows you how to configure some of the advanced features of the ZyAIR.

Refer to your *User's Guide* for more information on ZyAIR configurations.

5.1 Power over Ethernet (PoE)

Power over Ethernet (PoE) is the ability to provide power to your ZyAIR via an 8-pin CAT 5 Ethernet cable, eliminating the need for a nearby power source. An injector or PoE device (not included) is also needed to supply the Ethernet cable with power. This feature allows increased flexibility in the locating of your ZyAIR. You only need to connect the external power adaptor if you are not using PoE. If you simultaneously use both PoE and the external power adaptor, the ZyAIR will draw power from the PoE connection only.

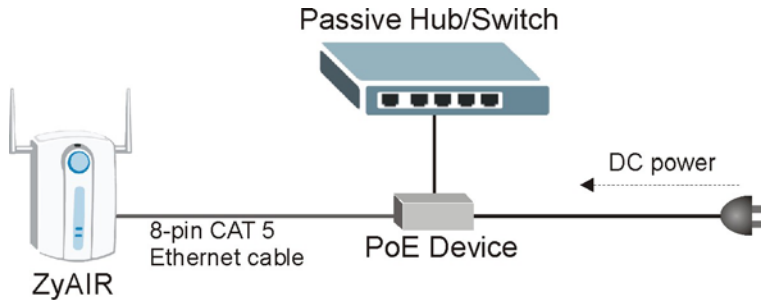


Figure 3 PoE Installation Example

5.2 Wireless LAN Overview

This section introduces the wireless LAN and some basic configurations. A wireless LAN can be as simple as two computers with wireless adapters communicating in a peer-to-peer network or as complex as a number of computers with wireless adapters communicating through access points (APs) which bridge network traffic to the wired LAN.

5.3 Configuring Wireless LAN

Click **WIRELESS** under **SETUP** to open the **Wireless** screen.

The screen varies according to the operating mode you select.

Infrastructure

An infrastructure network, also called a Basic Service Set (BSS), exists when all communications between wireless stations or between a wireless station and a wired network client go through one access point (AP).

Intra-BSS traffic is traffic between wireless stations in the BSS.

Select **Infrastructure** from the **Operating Mode** drop-down list box to display the screen as shown.

Figure 4 Wireless LAN

The following table describes the fields in this screen.

Table 2 Wireless LAN

LABEL	DESCRIPTION
Operating Mode	Select Infrastructure from the drop-down list.
ESSID	In this field enter the ESSID of the AP to which you want to associate. To associate to an ad-hoc network, you must enter the same ESSID as the peer ad-hoc computer. Enter Any to associate to or roam between any infrastructure wireless networks.
RTS /CTS Threshold	Enter a value between 0 and 2432 . The default is 2432 .

Table 2 Wireless LAN

LABEL	DESCRIPTION
Fragmentation Threshold	Enter a value between 256 and 2432 . It is the maximum data fragment size that can be sent.
WEP Encryption	Select Disable to allow wireless stations to communicate with the AP without any data encryption. Select 64-bit WEP or 128-bit WEP to enable data encryption.
Authentication Method	Select Auto , Open System Only or Shared Key Only from the drop-down list box. This field is N/A if WEP is not activated. If WEP encryption is activated, the default setting is Auto .
ASCII	Select this option to enter ASCII characters as the WEP keys.
Hex	Select this option to enter hexadecimal characters as the WEP keys. The preceding "0x" is entered automatically.
Key 1 to Key 4	The WEP keys are used to encrypt data. Both the ZyAIR and the wireless stations must use the same WEP key for data transmission. If you chose 64-bit WEP , then enter any 5 ASCII characters or 10 hexadecimal characters ("0-9", "A-F"). If you chose 128-bit WEP , then enter 13 ASCII characters or 26 hexadecimal characters ("0-9", "A-F"). You must configure all four keys, but only one key can be activated at any one time. The default key is key 1.
Enable Breathing LED	Select this check box to enable the Breathing LED, also known as the ZyAIR LED. The blue ZyAIR LED is on when the ZyAIR is on and blinks (or breaths) when data is being transmitted to/from its wireless stations. Clear the check box to turn this LED off even when the ZyAIR is on and data is being transmitted/received.

Ad-Hoc

An Ad-hoc network, also called an Independent Basic Service Set (IBSS), is the simplest WLAN configuration. An Ad-hoc network is defined as two or more computers with wireless adapters within range of each other that form an independent (wireless) network without the need of an access point (AP).

Select **Ad Hoc** in the **Operating Mode** drop-down list box to display the screen as shown.

Wireless

Operating Mode Ad Hoc

ESSID Any

Choose Channel ID Channel-06 2437MHz or Scan

RTS/CTS Threshold 2432 (0 ~ 2432)

Fragmentation Threshold 2432 (256 ~ 2432)

WEP Encryption Disable

Authentication Method Auto

64-bit WEP: Enter 5 ASCII characters or 10 hexadecimal characters ("0-9", "A-F") for each Key(1-4).
 128-bit WEP: Enter 13 ASCII characters or 26 hexadecimal characters ("0-9", "A-F") for each Key(1-4).
 (Select one WEP key as an active key to encrypt wireless data transmission.)

ASCII Hex

Key 1

Key 2

Key 3

Key 4

Enable Breathing LED

Apply Reset

Figure 5 Wireless : Ad Hoc

The following table describes the additional fields that display when you select the **Ad Hoc** operating mode in the **Wireless** screen.

Table 3 Wireless : Ad Hoc

LABEL	DESCRIPTION
Operating Mode	Select Ad Hoc in this field to display the screen.
ESSID	In this field enter the ESSID of the peer ad-hoc computer to which you want to associate. To associate to an ad-hoc network, you must enter the same ESSID as the peer ad-hoc computer. Enter Any to associate to or roam between any infrastructure wireless networks.

Table 3 Wireless : Ad Hoc

LABEL	DESCRIPTION
Choose Channel ID	Set the operating frequency/channel depending on your particular region. To manually set the ZyAIR to use a channel, select a channel from the drop-down list box. Click WIRELESS under MAINTENANCE to open the Channel Usage screen to make sure the channel is not already used by another AP or independent peer-to-peer wireless network. To have the ZyAIR automatically select a channel, click Scan instead.
Scan	Click this button to have the ZyAIR automatically scan for and select a channel with the least interference.

Bridge

The ZyAIR can function in bridge mode allowing you to wirelessly connect two wired network segments. You need to know the MAC address of the peer device, which also must be in bridge mode. The wireless bridge connection is also known as a Wireless Distribution System (WDS).

Click **WIRELESS** under **SETUP**. Select **Bridge** in the **Operating Mode** drop-down list box to display the screen as shown.

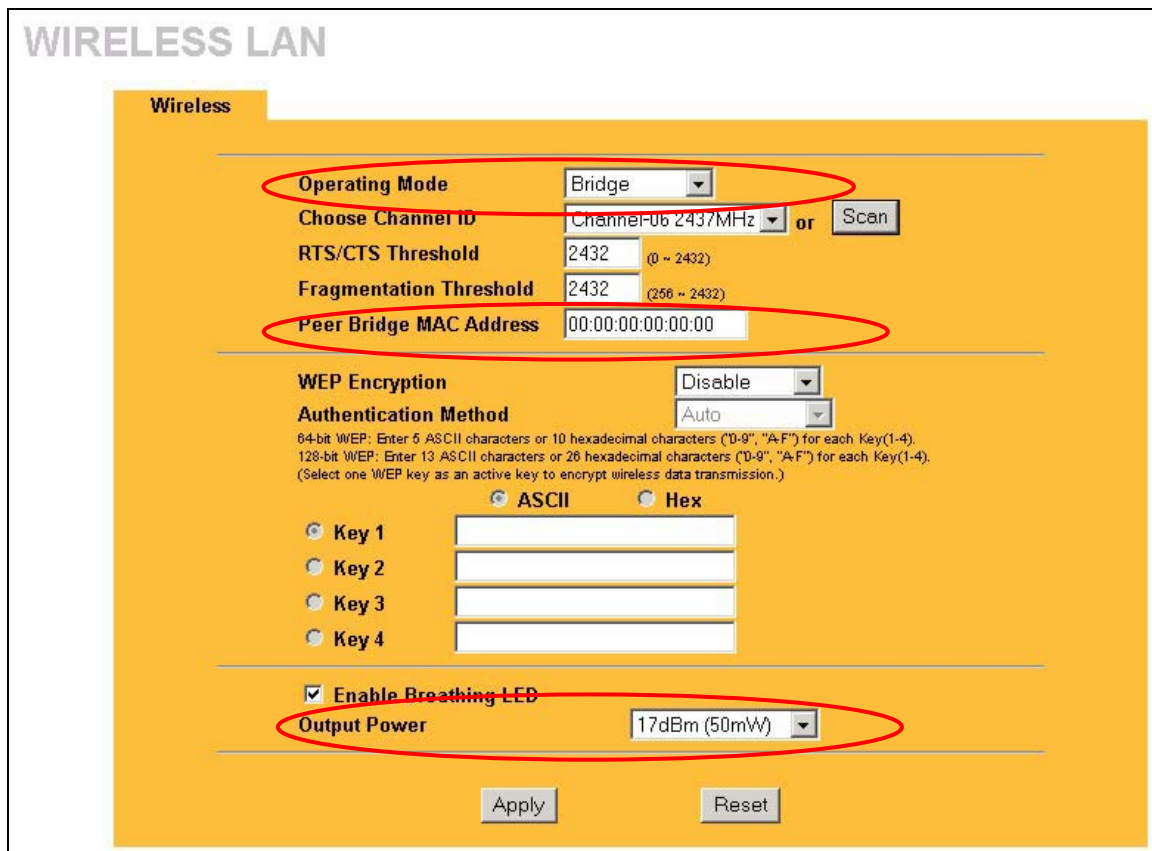


Figure 6 Wireless : Bridge

The following table describes the additional fields that display when you select the **Bridge** operating mode in the **Wireless** screen.

Table 4 Wireless : Bridge

LABEL	DESCRIPTION
Operating Mode	Select Bridge in this field to display the screen as shown in <i>Figure 6</i> .
Peer Bridge MAC Address	Type the MAC address in valid MAC address format, that is, six hexadecimal character pairs, for example, 12:34:56:78:9a:bc.

Table 4 Wireless : Bridge

LABEL	DESCRIPTION
Output Power	Set the output power of the ZyAIR in this field. If there is a high density of APs within an area, decrease the output power of the ZyAIR to reduce interference with other APs. The options are 11dBm (12.6mW) , 13dBm (20mW) , 15dBm (32mW) or 17dBm (50mW) .

6 Hardware Installation

6.1 Attaching Antennas

Follow the steps below to connect the supplied antennas.

1. Locate the antenna connectors on the sides of your ZyAIR.
2. Screw the antennas clockwise onto the antenna connectors. The antennas should be perpendicular to the ground and parallel to each other.

Make sure the antennas are securely screwed onto the antenna connectors.

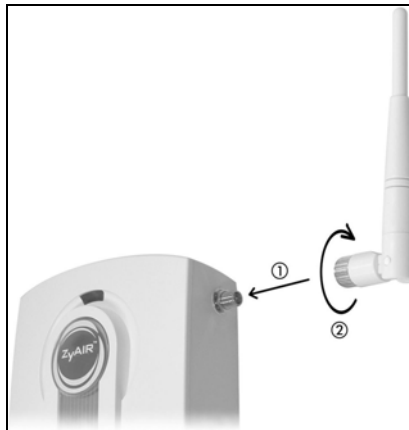


Figure 7 Attaching Antennas

6.2 Hardware Mounting Installation

In general, the best location for the access point is at the center of your intended wireless coverage area. For better performance, mount the ZyAIR high up free of obstructions.

Free-standing

Place your ZyAIR on a flat, level surface (on a desk or shelf) that is strong enough to support the weight of the ZyAIR with connection cables.

Wall-mounted

Follow the steps to attach your ZyAIR to a wall.

1. Locate a high position on the wall that is free of obstructions.
2. Connect two screws (not included) in the wall 60mm apart. You can use the diagram at the end of this guide to help you mark the screw holes correctly. Use screws with 6mm ~ 8mm (0.24" ~ 0.31") wide heads. Do not screw the screws all the way in to the wall. Leave a small gap between the head of the screw and the wall. The gap must be big enough for the screw heads to slide into the screw slots and the connection cables to run down the back of the ZyAIR.

Make sure the screws are securely fixed to the wall and strong enough to hold the weight of the ZyAIR with the connection cables.

3. Adjust the cables.
 - a. Run the connection cables down the back of the ZyAIR as shown in the following figure.**OR:**
 - b. Run the connection cables upward and along the edge of the ceiling.

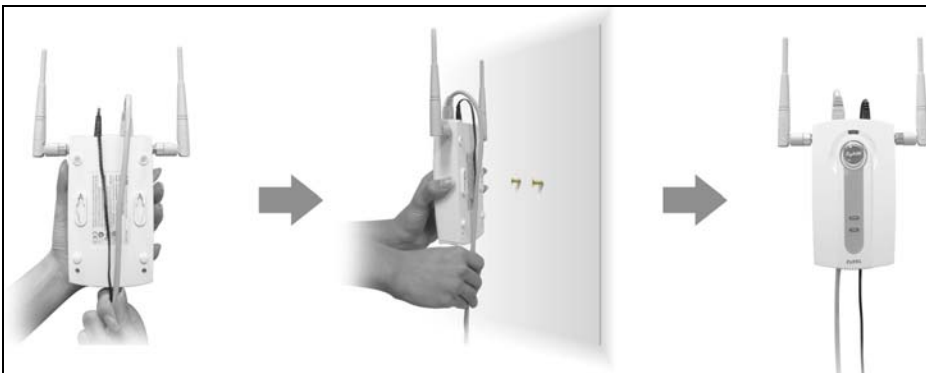


Figure 8 Run the Cables Down the Back of the ZyAIR



Figure 9 Run the Cables Upward

4. Align the holes on the back of the ZyAIR with the screws on the wall. Hang the ZyAIR on the screws.

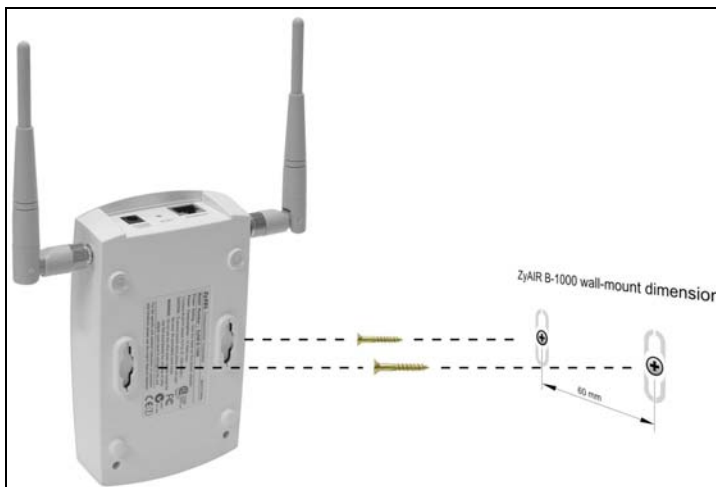


Figure 10 Wall Mounting the ZyAIR

7 Troubleshooting

PROBLEM	CORRECTIVE ACTION
The PWR LED is off.	<p>Make sure you are using the correct power adaptor and the power adaptor is plugged into an appropriate power supply.</p> <p>Unplug the power adaptor and plug it in again. If the error persists, you may have a hardware problem. In this case, you should contact your vendor.</p>
The ETHN LED is off.	<p>Check the cable connection to the ZyAIR ETHERNET port.</p> <p>Make sure your computer's network card is working properly.</p>
I cannot access the web configurator.	<p>Make sure the IP addresses and subnet masks of the ZyAIR and the computer are in the same IP address range. (For example, if the ZyAIR is using the default IP address and subnet mask, check that the IP address of the computer is in the range 192.168.1.11 ~192.168.1.254, except 192.168.1.11, and the subnet mask is 255.255.255.0). Refer to the <i>Setting Up Your Computer's IP Address</i> section.</p> <p>If you changed the ZyAIR default IP address, then enter the new IP address as the web site address.</p> <p>The default password is "1234". If you have changed the password and have now forgotten it, you will need to reset the ZyAIR. Refer to the <i>User's Guide</i> for how to use the RESET button.</p>