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User Manual

EKI-6331AN-BE/
EKI-6332GN-AE

IEEE 802.11n Wi-Fi AP/Client/
Bridge

ADVANTECH

Enabling an Intelligent Planet

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Product Warranty (5 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for five years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.

2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.

3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.

4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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Declaration of Conformity

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class B

Note: 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 or more 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.

> **Caution!** *Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.*

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. To avoid the possibility of exceeding radio frequency exposure limits, you shall beep a distance of at least 100cm between you and the antenna of the installed equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

Technical Support and Assistance

1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   – Product name and serial number
   – Description of your peripheral attachments
   – Description of your software (operating system, version, application software, etc.)
   – A complete description of the problem
   – The exact wording of any error messages

Warnings, Cautions and Notes

Warning! *Warnings indicate conditions, which if not observed, can cause personal injury!*

Caution! *Cautions are included to help you avoid damaging hardware or losing data. e.g.*

There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Note! *Notes provide optional additional information.*

Document Feedback

To assist us in making improvements to this manual, we would welcome comments and constructive criticism. Please send all such - in writing to: support@advantech.com

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:

- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment does not work well, or you cannot get it to work according to the user's manual.
- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 80° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
17. The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

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Chapter 1

Introduction

1.1 Introduction

EKI-6332GN-AE/EKI-6331AN-BE is a high-performance last-mile broadband solution that provides reliable wireless network coverage. Designed with IEEE 802.11n standard, 2x2 MIMO technology and high output power makes it possible deliver up to 300Mbps high data rate with longer range for general purpose application. EKI-6332GN-AE operates at 2.4GHz band while EKI-6331AN-BE operates at 5GHz band.

EKI-6332GN-AE/EKI-6331AN-BE can be used as the access point, the client, the WDS and the AP Repeater. While being as the access point, it can be deployed to provide wireless networking service. In the other way to be as the client, it can receive wireless signal over the last mile, helping WISPs deliver internet service to the new residential and the business customer where wired broadband internet service, such as cable and DSL, cannot serve in. In addition, the easy-to-install EKI-6332GN-AE/EKI-6331AN-BE features with outstanding throughput performance and a cost-effective design that allows users to have the reliable equipment at the affordable price.

1.2 Appearance

Figure 1.1 EKI-6332GN-AE/EKI-6331AN-BE

1.3 Key Features

- Compliant with IEEE 802.11n standard
- Support passive PoE which is supplied with 24V.
- High reliable watertight housing endures almost any harsh environments
- Support 64/128/152-bit WEP and 802.1X, WPA, WPA2, WPA&WPA2,WPA-PSK, WPA2-PSK, and WPA-PSK&WPA2-PSK etc
- User-friendly Web and SNMP-based management interface

1.4 Typical Application

EKI-6332GN-AE/EKI-6331AN-BE can be applied into the following environments:

- Cost-effectively provide long distance backhaul for remote areas (e.g. village, oil well, island, mountain and etc.)
- Establish local backhaul for campus, farm and factory
- Provide and access for video streaming or surveillance for industrial and mining enterprises

Figure 1.2 Typical Application

Chapter 2

Hardware Installation

This chapter describes safety precautions and product information you have to know and check before installing EKI-6332GN-AE/EKI-6331AN-BE.

2.1 Preparation before Installation

2.1.1 Professional Installation Required

Please seek assistance from a professional installer who is well trained in the RF installation and knowledgeable in the local regulations.

2.1.2 Safety Precautions

1. To keep you safe and install the hardware properly, please read and follow these safety precautions.
2. If you are installing EKI-6332GN-AE/EKI-6331AN-BE for the first time, for your safety as well as others', please seek assistance from a professional installer who has received safety training on the hazards involved.
3. Keep safety as well as performance in mind when selecting your installation site, especially where there are electric power and phone lines.
4. When installing EKI-6332GN-AE/EKI-6331AN-BE, please note the following things:
- Do not use a metal ladder;
- Do not work on a wet or windy day;
- Wear shoes with rubber soles and heels, rubber gloves, long sleeved shirt or jacket.
5. When the system is operational, avoid standing directly in front of it. Strong RF fields are present when the transmitter is on.

2.1.3 Installation Precautions

To keep EKI-6332GN-AE/EKI-6331AN-BE well while you are installing it, please read and follow these installation precautions.

1. Users MUST use a proper and well-installed grounding and surge arrestor with EKI-6332GN-AE/EKI-6331AN-BE; otherwise, a random lightening could easily cause fatal damage to EKI-6332GN-AE/EKI-6331AN-BE. EMD (Lightning) DAMAGE IS NOT COVERED UNDER WARRNTY.
2. Users MUST use the "Power cord & PoE Injector" shipped in the box with EKI-6332GN-AE/EKI-6331AN-BE. Use of other options will likely cause damage to EKI-6332GN-AE/EKI-6331AN-BE.

2.1.4 Product Package

The product package you have received should contain the following items. If any of them are not included or damaged, please contact your local vendor for support.

- EKI-6332GN-AE/EKI-6331AN-BE   × 1
- Detachable 5dBi Antennas   × 2
- Pole Mounting Ring   × 2
- 24VDC Power Cord & PoE Injector   × 1
- Ferrite Suppression Core   × 1
- Grounding Wire   × 1
- Product CD   × 1

Note! *Product CD contains Quick Installation Guide and User Manual.*

Pole Mounting Ring

Round Cable Suppression Core

24V$_{DC}$ Power Cord & PoE Injector

Warning! *Users MUST use the "Power cord & PoE Injector" shipped in the box with EKI-6332GN-AE/EKI-6331AN-BE. Use of other options will likely cause damage to EKI-6332GN-AE/EKI-6331AN-BE.*
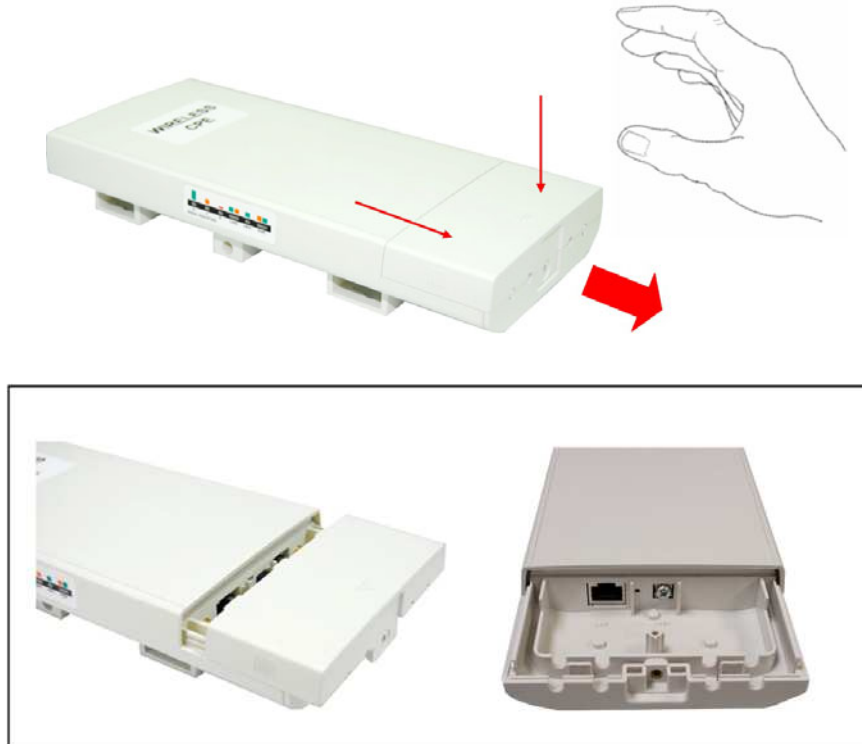
2.2 Hardware Installation

2.2.1 Connect up

1. The bottom of the Access Point is a movable cover. Grab the cover and pull it back harder to take it out as the figure shown below.

2. Plug a standard Ethernet cable into the RJ45 port.

3. Slide the cover back and press down the lock button to seal the bottom of the Access Point.

2.2.2 Using the Grounding Wire

EKI-6332GN-AE/EKI-6331AN-BE is equipped with a grounding wire. It is important that the Access Point, cables, and PoE Injector must be properly connected to earth ground during normal use against surges or ESD.

1. Remove the screw on the grounding point at the bottom of the Access Point.

2. Put the grounding wire on the grounding point at the bottom of the Access Point. Then screw the grounding wire to tighten up.

2.2.3 Install External Antennas

The Access Point provides two reverse SMA antenna connectors for connecting external antennas.

1. Connect external antennas that came with the package to the SMA-type connectors on top of the Access Point. For longer coverage distance, it is recommended that higher gain antennas be used to best suit the application.


Warning! *Users MUST power off the Access Point first before connecting the external antenna to it. Do not power on the device for a certain of time without physically attaching the external antenna; otherwise, damage might be caused to the unit itself.*

2. Bend the antennas to 90 degree or 45 degree.
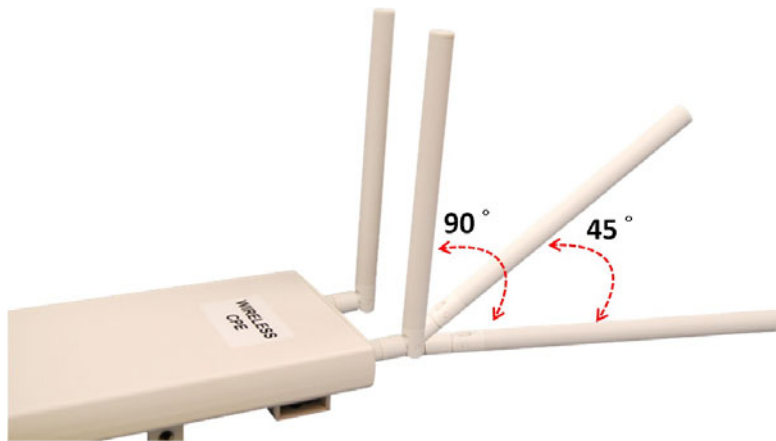
3. You may turn one antenna 45 degrees to the left and the other 45 degrees to the right. The tilted antennas are a reasonable way to operate and the best way if the antennas are fairly close together since they couple together much less than if they are both pointed in the same direction (parallel).
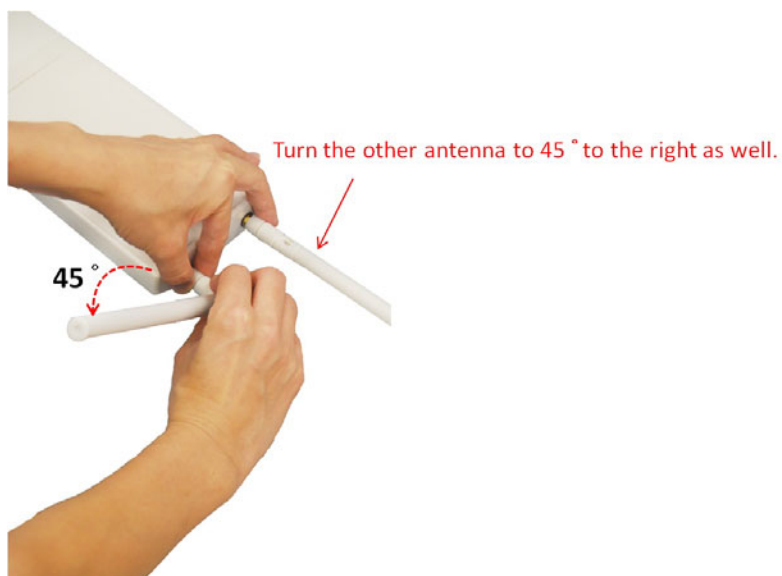
Note! *The polarization of antennas should be properly aligned. Maximum signal strength between bridges occurs when both bridges are using identical polarization.*

4. Tighten up the connector joint clockwise to fix the antennas.

5. To adjust antennas, loose the connector joint counterclockwise first, then adjust antenna to the desired position. DO NOT bend or turn the antennas without loosening the connector joint, otherwise, damage might be caused to the antennas.
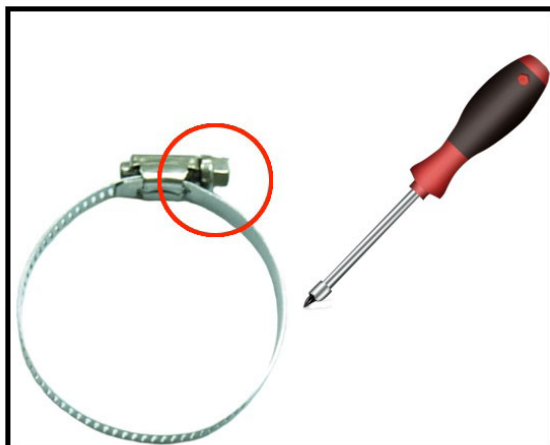
6.   Antenna installation is complete.

2.2.4 Mount the AP on a Pole

1.   Turn the Access Point over. Put the pole mounting ring through the middle hole of it. Note that you should unlock the pole mounting ring with a screw driver before putting it through the device as the following right picture shows.

2. Mount the Access Point steadily to the pole by locking the pole mounting ring tightly.

2.2.5 Power Up

1. Connect power cord to the PoE injector as the following right picture shows.

2. Connect the Ethernet cable that connects the Access Point to the "POE" port of the PoE injector as figured below.

3. Connect the power plug to a power socket. The Access Point will be powered up immediately.

2.2.6 Connect to the Access Point

To be able to configure and manage the Access Point, please do the followings:

1. Open the ferrite core by unsnapping the connector latches. The core will open, revealing a concave surface.

2. Lay the Ethernet cable into the core, usually within 2 to 3 inches of the connector. You may have to experiment with the final location depending on the effectiveness of the high frequency abatement.

3. Loop the cable around and through the core. This helps "lock" the core in place, and may be required in circumstances with severe interference.