

# BX-15ZBS Outdoor Bellbox

## Introduction

BX-15ZBS is a ZigBee Outdoor Bellbox. It is capable of raising alarm upon receiving alarm signal from the coordinator in the ZigBee network when an alarm is activated. During the alarm, the Bellbox will sound alarm with its built-in siren and also flash the strobe light to attract attention.

The Bellbox utilizes ZigBee technology for wireless signal transmission. ZigBee is a wireless communication protocol that is reliable and has low power consumption and high transmission efficiency. Based on IEEE802.15.4 standard, ZigBee allows a large amount of devices to be included in a network and coordinated for data exchange and signal transmission

The Bellbox serves as an end device in the ZigBee network. It can be included in the ZigBee network to receive alarm signal, but cannot permit any other ZigBee device to join the network through the Bellbox.

## Parts Identification

### 1. Mounting Holes x 4

### 2. Function Button

- Press the button once to send a supervision signal.
- Press and hold the button for 10 seconds then release to reset the Bellbox.

### 3. Alarm Length Dip Switches

The Dip Switches contain 4 switches which can be set to either ON or Off position



### 4. Tamper Switch

The Tamper switch will be activated when the Bellbox is removed from mounted surface, or its cover is opened.

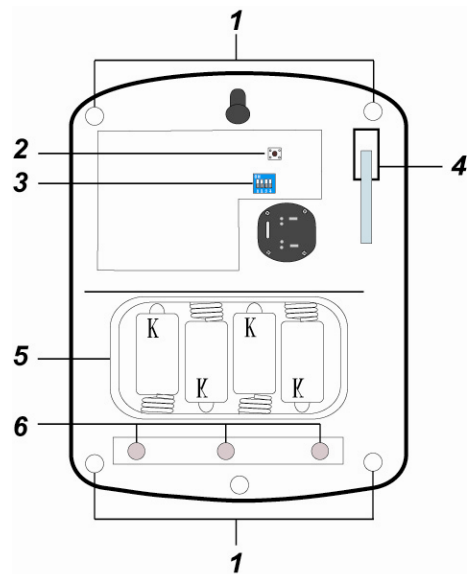
### 5. Battery Compartment

The Bellbox is powered by four 1.5V D-cell alkaline battery.

### 6. LED Strobe Light

The strobe light includes 3 LEDs (From left to right: LED1-> LED2-> LED3)

Refer to below table for LED and siren beep for status indication.



|                                    | Siren Audio   | Strobe light indication         |
|------------------------------------|---|---------------------------------|
| Lost connection to current network |   | LED3 flashes every 20 minutes   |
| Joining ZigBee Network             |   | LED3 flashes twice              |
| Arm                                | 1 beep  | All 3 LED flash once            |
| Home                               | 3 beeps   | All 3 LED flash once            |
| Disarm                             | 2 beep  | Sequentially flash for 1 cycle  |
| Arm (Tamper Fault)                 | 5 beeps   | All 3 LED flash 5 times         |
| Home (Tamper Fault)                | 5 beeps   | All 3 LED flash 5 times         |
| Disarm (Tamper Fault)              | 5 beeps   | Sequentially flash for 5 cycles |
| Arm (Low Battery)                  | 3 beeps   | All 3 LED flash 3 times         |
| Home (Low Battery)                 | 3 beeps   | All 3 LED flash 3 times         |
| Disarm (Low Battery)               | 3 beeps   | Sequentially flash for 3 cycles |
| Burglar / Emergency Alarm          | Continuous alarm sound                                    | All 3 LED flash continuously    |
| Fire Alarm                         | Alarm sound for 2 seconds, followed by a stop of 1 second | All 3 LED flash continuously    |

## Features

### ● **Alarm Activation**

When an alarm is activated, the Bellbox will activate its siren and strobe light according to different alarm type:

- Burglar and Emergency alarm: Continuous alarm and strobe flash
- Fire alarm: 2-second alarm with 1-second interval and continuous strobe flash

### ● **Alarm Length Setting**

When the Bellbox receives an alarm signal via ZigBee network, it will activate siren and strobe light according to the alarm length set by the system control panel.

If the Bellbox receives an alarm signal, but the alarm length duration is not defined by the system control panel, the Bellbox will activate alarm according to Dip Switch setting below:

| SW1 | SW2 | SW3 | SW4 | Siren Duration |
|-----|-----|-----|-----|----------------|
| ON  | OFF | OFF | OFF | 3 minutes      |
| OFF | ON  | OFF | OFF | 5 minutes      |
| ON  | ON  | OFF | OFF | 10 minutes     |

### ● **Battery and Low Battery Detection**

The Bellbox uses four 1.5V alkaline D-cell batteries as its power source. The battery is included in the package. Open the battery compartment then insert the batteries to power up the Bellbox.

The Bellbox features Low Battery Detection function. When the battery voltage is low, the Bellbox will transmit Low Battery signal to the coordinator in ZigBee network.

When changing battery, after removing the old battery, press the Tamper Switch twice to fully discharge before inserting new battery

### ● **Tamper Protection**

The Bellbox is protected by a tamper switch which is compressed against the mounting surface when mounted. Whenever the Bellbox is removed from mounted location, or its cover opened, the tamper switch will be activated and the Bellbox will send a tamper open signal to remind the user of the condition and activate an alarm immediately. **The alarm length of tamper alarm is determined by the Dip Switch setting above.**

### ● **Supervision**

The Bellbox will transmit a supervision signal to report its condition regularly according to user setting. The factory default interval is 30 minutes. The user can also press the Function Button once to transmit a supervision signal manually.

## ZigBee Network Setup

### ● **ZigBee Device Guideline**

ZigBee is a wireless communication protocol that is reliable and has low power consumption and high transmission efficiency. Based on IEEE802.15.4 standard, ZigBee allows a large amount of devices to be included in a network and coordinated for data exchange and signal transmission.

Due to the fundamental structure of ZigBee network, ZigBee device will actively seek and join network after powering on. Since performing a task in connecting network may consume some power, it is required to follow the instructions to avoid draining battery of a ZigBee device

- Ensure your ZigBee network router or coordinator is powered on before inserting battery into the ZigBee device.
- Ensure the ZigBee network router or coordinator is powered on and within range while a ZigBee device is in use.
- Do not remove a ZigBee device from the ZigBee network router or coordinator without removing the battery from a ZigBee device.

### ● **Joining the ZigBee Network**

As a ZigBee device, the Bellbox needs to join a ZigBee network to send and receive alarm signal. Please follow the steps below to join the Bellbox into the ZigBee network.

1. Insert the batteries.
2. Press and hold the function button for 10 seconds then release to join ZigBee network. Please make sure to enable the permit-join feature on the router or coordinator of your ZigBee network
3. After joining the ZigBee network, the Bellbox will be registered in the security system in the network automatically. Please check the security system control panel or CIE (Control and Indicating Equipment) to confirm if joining and registration is successful.

- After joining the ZigBee network, if the Bellbox loses connection with current ZigBee network, the LED 3 will flash every 20 minutes to indicate the situation. Please check your ZigBee network condition and Bellbox signal transmission range to correct the problem.

### ● **Factory Reset**

If you want to remove the Bellbox from current network and join a new network, you need to use the Factory Reset function to clear the Bellbox for its stored setting and actively search for a ZigBee network. To perform Factory Reset:

- Press and hold the function button for 10 seconds, then release the button.
- The Bellbox has been reset to factory default setting with all its previous network information removed. It will now actively search for available ZigBee network again and join the network automatically.
- If the Bellbox successfully joins a ZigBee network, the LED3 will flash twice to indicate.

## Installation

### ● **Installation Guideline**

- The Bellbox is designed with a waterproof case to be mounted on external wall of you house.
- When mounting the Bellbox, mount as high as possible for its siren and strobe light to attract attention when an alarm is activated.
- The Bellbox is designed to be mounted on a flat surface with fixing screws and plugs provided.
- The base has 4 mounting holes for you to screw the Bellbox onto the wall.

### ● **Mounting the Bellbox**

- Use the 4 mounting holes as template, drill holes on the wall.
- Insert the wall plugs if fixing it into plaster or brick.
- Screw the base into the wall plugs. Make sure the tamper switch is properly depressed against the wall surface.
- Screw the cover back onto its base.

### ● **Using Bellbox with ZigBee Router**

#### **IMPORTANT NOTE**

If the Bellbox installation location is away from your system control panel and requires ZigBee routers to improve signal strength. **DO NOT** use a ZigBee Router without backup battery. A ZigBee router without battery will be powered down during AC power failure and the Bellbox connected to the router will lose connection with ZigBee network. You should plan your Bellbox installation location using only ZigBee router with backup battery.

## Appendix

**(The Appendix information is for developers only.)**

### ● **Bellbox Cluster ID**

|                                       |                    |
|---------------------------------------|--------------------|
| Device ID: IAS Warning Device: 0x0403 |                    |
| Endpoint: 0x01                        |                    |
| <b>Server Side</b>                    | <b>Client Side</b> |
| <b>Mandatory</b>                      |                    |
| Basic (0x0000)                        | <i>None</i>        |
| Identify(0x0003)                      |                    |
| IAS Zone(0x0500)                      |                    |
| IAS WD(0x0502)                        |                    |
| <b>Optional</b>                       |                    |
| <i>None</i>                           | <i>None</i>        |

### ● **Attribute of Basic Cluster Information**

| Identifier | Name               | Type                   | Range      | Access    | Default | Mandatory / Optional |
|------------|--------------------|------------------------|------------|-----------|---------|----------------------|
| 0x0000     | <i>ZCLVersion</i>  | Unsigned 8-bit integer | 0x00 –0xff | Read only | 0x01    | M                    |
| 0x0001     | ApplicationVersion | Unsigned               | 0x00 –     | Read      | 0x00    | O                    |

|        |                            |                        |              |              |                   |   |
|--------|----------------------------|------------------------|--------------|--------------|-------------------|---|
|        |                            | 8-bit integer          | 0xff         | only         |                   |   |
| 0x0003 | <i>HWVersion</i>           | Unsigned 8-bit integer | 0x00 –0xff   | Read only    | 0                 | O |
| 0x0004 | <i>ManufacturerName</i>    | Character String       | 0 – 32 bytes | Read only    | Climax Technology | O |
| 0x0005 | <i>ModelIdentifier</i>     | Character String       | 0 – 32 bytes | Read only    | (Model Version)   | O |
| 0x0006 | <i>DateCode</i>            | Character String       | 0 – 16 bytes | Read only    |                   | O |
| 0x0007 | <i>PowerSource</i>         | 8-bit                  | 0x00 –0xff   | Read only    |                   | M |
| 0x0010 | <i>LocationDescription</i> | Character String       | 0 – 32 bytes | Read / Write |                   | O |
| 0x0011 | <i>PhysicalEnvironment</i> | 8-bit                  | 0x00 –0xff   | Read / Write | 0x00              | O |
| 0x0012 | <i>DeviceEnabled</i>       | Boolean                | 0x00 –0x01   | Read / Write | 0x01              | M |

● **Attribute of Identify Cluster Information**

| Identifier | Name                | Type                    | Range        | Access       | Default | Mandatory / Optional |
|------------|---------------------|-------------------------|--------------|--------------|---------|----------------------|
| 0x0000     | <i>IdentifyTime</i> | Unsigned 16-bit integer | 0x00 –0xffff | Read / Write | 0x0000  | M                    |

● **Attribute of IAS Zone Cluster Information**

| Identifier | Name                   | Type                   | Range                    | Access       | Default | Mandatory / Optional |
|------------|------------------------|------------------------|--------------------------|--------------|---------|----------------------|
| 0x0001     | <i>ZoneState</i>       | 8-bit Enumeration      | All                      | Read only    | 0x00    | M                    |
| 0x0002     | <i>ZoneType</i>        | 8-bit Enumeration      | All                      | Read only    |         | M                    |
| 0x0003     | <i>ZoneStatus</i>      | 16-bit bitmap          | All                      | Read only    | 0x00    | M                    |
| 0x0010     | <i>IAS_CIE_ADDRESS</i> | IEEE ADDRESS           | Valid 64bit IEEE address | Read / Write |         | M                    |
| 0x0011     | <i>ZONE_ID</i>         | Unsigned 8-bit integer | All                      | Read only    | 0xFF    | M                    |

● **Attribute of IAS WD Cluster Information**

| Identifier | Name               | Type                    | Range        | Access       | Default | Mandatory / Optional |
|------------|--------------------|-------------------------|--------------|--------------|---------|----------------------|
| 0x0000     | <i>MaxDuration</i> | Unsigned 16-bit integer | 0x00 –0xfffe | Read / Write | 240     | M                    |

## **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.

**FCC Caution:** To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

## **FCC Radiation Exposure Statement**

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

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The antennas 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.

This device complies with Part 15 of the FCC Rules and Industry Canada licence-exempt RSS-210 standard.. 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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.