



Indoor Location Beacon

FAP5030-030

Installation and User Guide



Innovative Wireless Technologies, Inc.
1100 Main Street
Lynchburg, VA 24504

Phone: 434-316-5230 (United States)
Fax: 434-316-5232 (United States)
www.iwtwireless.com (United States)



Contents

| | |
|---|-----------|
| 1. INTEGRATED MESH NODE OVERVIEW | 3 |
| 2. SAFETY INFORMATION | 3 |
| 2.1 DEVICES INSTALLED ABOVE GROUND..... | 3 |
| 2.1.2 FCC ALLOWABLE LIMITS FOR GENERAL RF EXPOSURE | 4 |
| 2.3 MODIFICATIONS | 4 |
| 3. SPECIFICATIONS FOR FAP5030-030 (TYPICAL UNLESS OTHERWISE SPECIFIED) | 4 |
| 4. INDOOR LOCATION BEACON DESCRIPTION..... | 5 |
| 4.1 INPUTS AND OUTPUTS..... | 5 |
| 5. CONFIGURING THE ILB | 6 |
| 6. INSTALLATION | 12 |
| 6.1 SITE SURVEY..... | 12 |
| 7. OPERATING AND MAINTENANCE INSTRUCTIONS | 13 |
| 7.1 POWERING THE ILB..... | 13 |
| 7.2 STATUS LEDS..... | 13 |
| 8. WARRANTY INFORMATION | 13 |



1. INDOOR LOCATION BEACON OVERVIEW

Innovative Wireless Technologies' **FAP5030-030** Indoor Location Beacon (ILB) is a PoE powered device containing a Wi-Fi AP and a Bluetooth® Low Energy (BLE) beacon that can be used to provide enhanced location support for indoor facilities. An internal configuration webpage allows the Wi-Fi and Bluetooth® parameters to be configured from a laptop/tablet/phone.

2. SAFETY INFORMATION

IMPORTANT! READ BEFORE USING THE INTEGRATED MESH NODE

This section contains important information on the safe operation of the IMN.

2.1 DEVICES INSTALLED ABOVE GROUND

NOTE: FCC CERTIFICATION PENDING

2.1.1 Part 15 of Federal Communications Commission (FCC) Rules Compliance

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This device contains FCC ID: 2AJVP-OMEGA2

FCC ID: **PENDING**

When operated above ground, ILB professional installation is required. No external antennas are approved for use with this product.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate RF energy which may cause harmful interference to radio communications if not installed and used in accordance with the instructions. It is important to note that proper installation does not guarantee interference will not occur. 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; or
- consult the dealer or an experienced radio/TV technician for help.

2.1.2 FCC Allowable Limits for General RF Exposure

CAUTION! To ensure that exposure to RF electromagnetic energy is within the FCC allowable limits for general RF exposure, always adhere to the following guidelines:

- The antennas used for the ILB transmitters must not be co-located or operating in conjunction with any other antenna or transmitter.
- The ILB must be installed 20 cm or more from any personnel in order to comply with FCC exposure requirements.

2.2 MODIFICATIONS

Changes or modifications to the ILB not expressly approved by Innovative Wireless Technologies, Inc. may void the user’s authority to operate this equipment.

3. SPECIFICATIONS FOR FAP5030-030

(Typical unless otherwise specified)

| PHYSICAL & ENVIRONMENTAL | |
|--------------------------|---------------------------|
| Operating Temperature | -20C to +60C |
| Operating Humidity | 15 to 95%, non-condensing |
| Dimensions | 5.5" x 4.3" x 2.3" |
| Weight | 1 lb |
| Enclosure Protection | IP54 |

| Wi-Fi | |
|-----------------|------------|
| Bands | 2.4 GHz |
| Standards | 802.11 b/g |
| Beacon Interval | 100 msec |
| Transmit power | 20 dBm |

| BLUETOOTH® | |
|---|---------------|
| Note: BLE Beacon is disabled in default configuration. | |
| Bands | 2402-2480 MHz |
| Standards | 4.0, 4.1, 4.2 |

| | |
|----------------|--------------------|
| Types | iBeacon, Eddystone |
| Transmit Power | 0 dBm |

| ETHERNET | |
|---------------------------------|--|
| 10/100 Mbps | |
| PoE IEEE 802.3a, class 0 | |
| RJ45 interface with PoE support | |

4. INDOOR LOCATION BEACON DESCRIPTION

To begin using the ILB, review the information below covering the basic information you need to know to get started.

4.1 INPUTS AND OUTPUTS

The Indoor Location Beacon is shown in Figures 1 and 2.

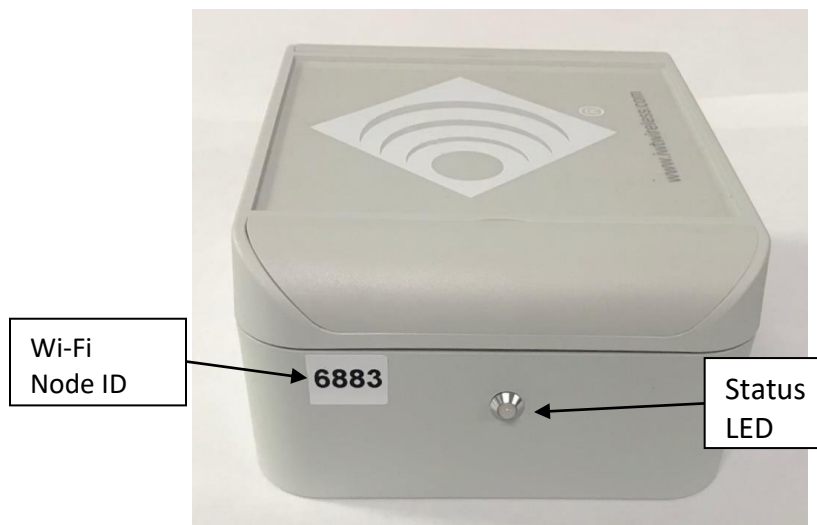


Figure 1 - Side View of ILB



Figure 2 - Bottom View of ILB

The following is an explanation of the IMN inputs and outputs as shown in Figure 1:

PoE INPUT: The ILB is powered by PoE. The power input to the ILB is an RJ45 connector on the back side of the enclosure.

Status LED: The ILB contains a single red/green LED that indicates the status of the device (power on, identification).

5. CONFIGURING THE ILB

Prior to installation, the ILB may be configured using a laptop/tablet/phone and the ILB's internal Configuration Webpage. The default configuration settings are shown in Figures 5 through 8 below.

The device must be powered ON to be configured.

With the device powered on:

1. Click on the wireless network icon in the bottom corner of the laptop screen (or search for wireless devices on tablet/phone) to view available Wi-Fi networks.
2. Search for the ILB device to be configured. The ILB will appear in the list of wireless networks as **ILBeacon-XXXX** where 'XXXX' is the four-digit node ID listed on the label of the device. Each ILB device has a unique ID.

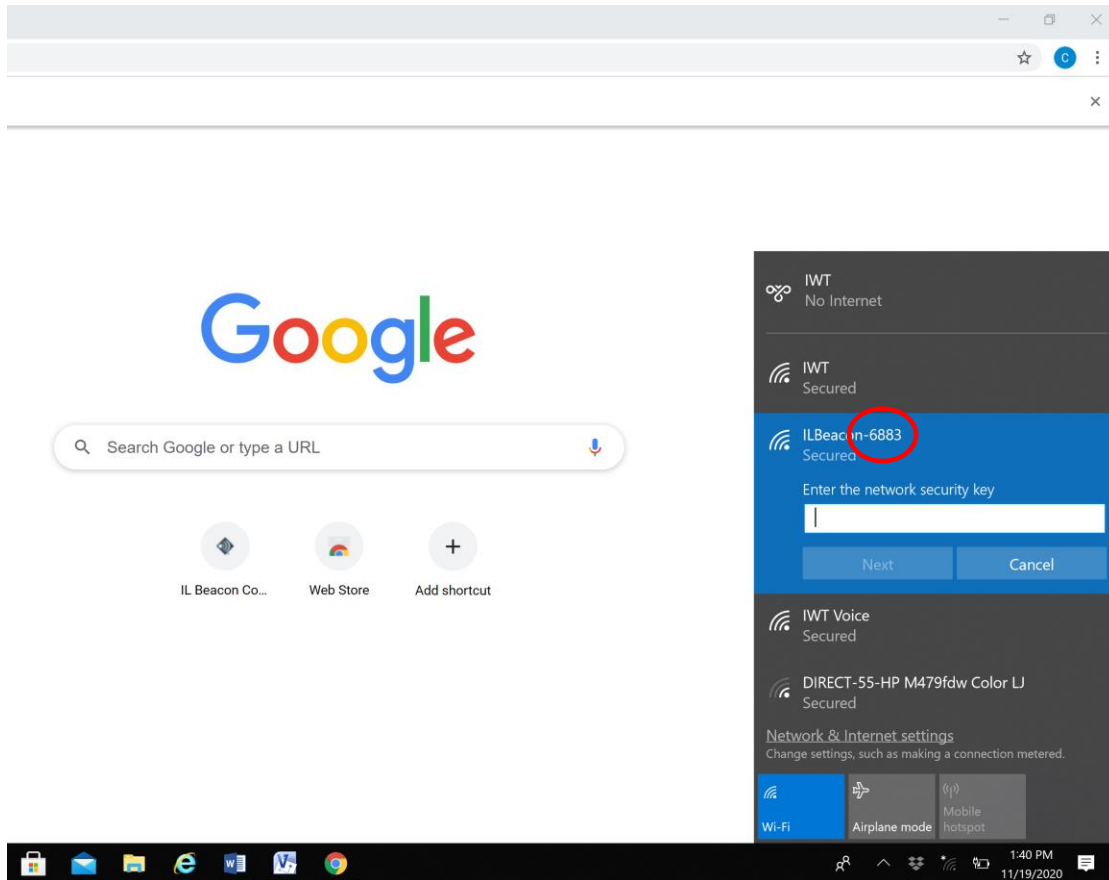


Figure 3 - Connecting to ILB with device ID 6883 (Wi-Fi)

3. Connect to the ILB. The default network security key is **Beacon123**. This passphrase may be changed as part of the configuration process using the ILB Configuration Webpage.
4. When the laptop is successfully connected to the ILB, open the device's internal Configuration Webpage by typing the following into a browser (Chrome, Firefox, Microsoft Edge recommended):

<https://192.168.3.1>

If a 'Certificate Error' message appears, select the option to continue on to the webpage. Figure 4 below shows an example of the Certificate Error page(s) that appear when using Microsoft Edge as a browser.



This site is not secure

This might mean that someone's trying to fool you or steal any info you send to the server. You should close this site immediately.

[Go to your Start page](#)

[Details](#)



This site is not secure

This might mean that someone's trying to fool you or steal any info you send to the server. You should close this site immediately.

[Go to your Start page](#)

Details

Your PC doesn't trust this website's security certificate.
The hostname in the website's security certificate differs from the website you are trying to visit.

Error Code: DLG_FLAGS_INVALID_CA
DLG_FLAGS_SEC_CERT_CN_INVALID

[Go on to the webpage](#) (Not recommended)

Figure 4 - Opening the Configuration Webpage

The ILB Configuration Webpage will open and Login information is requested.
The default Login information for each ILB device is as follows:

username: admin
password: Beacon123

After a successful log-in, the MAIN screen of the Configuration Webpage will appear (Figure 5):

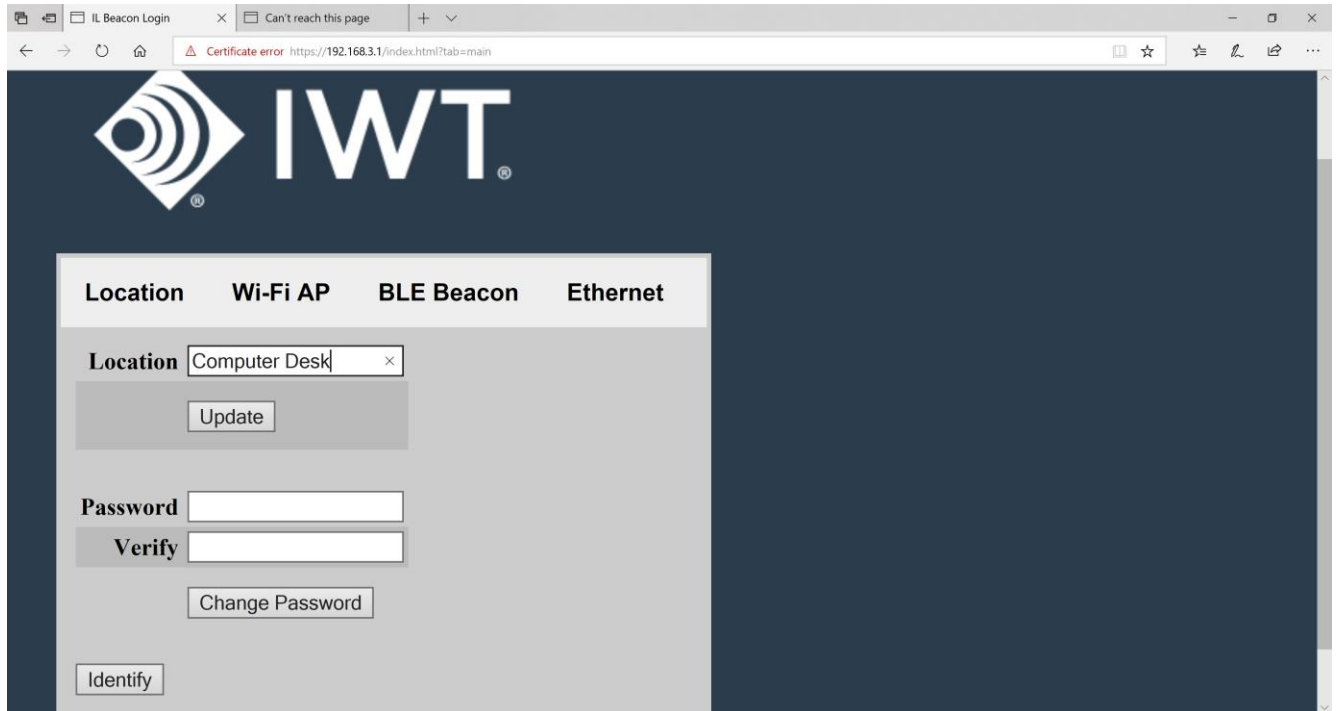


Figure 5 - Main page of the Configuration Webpage (LOCATION tab)

The four tabs on the Configuration Webpage can be used to switch between the different configuration options. The initial page that appears after logging in is the **LOCATION** tab. On this screen, the user may enter a text description of the physical location of each installed ILB device. To add a location description, type the desired text in the Location box and press the **Update** button.

The **LOCATION** tab also includes the option to change the Login password of the device. To change the password, type a new password into the **Password** box. Re-type the new password again in the **Verify** box and press the **Change Password** button.

The **LOCATION** screen also includes an **Identify** button. Pressing the **Identify** button will cause the LED on the connected ILB to blink GREEN for 45 seconds. This feature can be used to quickly identify and verify which ILB device is being configured if there are a number of devices located or installed in the same area.

Selecting the **WI-FI AP** tab opens the window shown in Figure 6. The **WI-FI AP** screen includes information necessary to configure the Wi-Fi beacon.

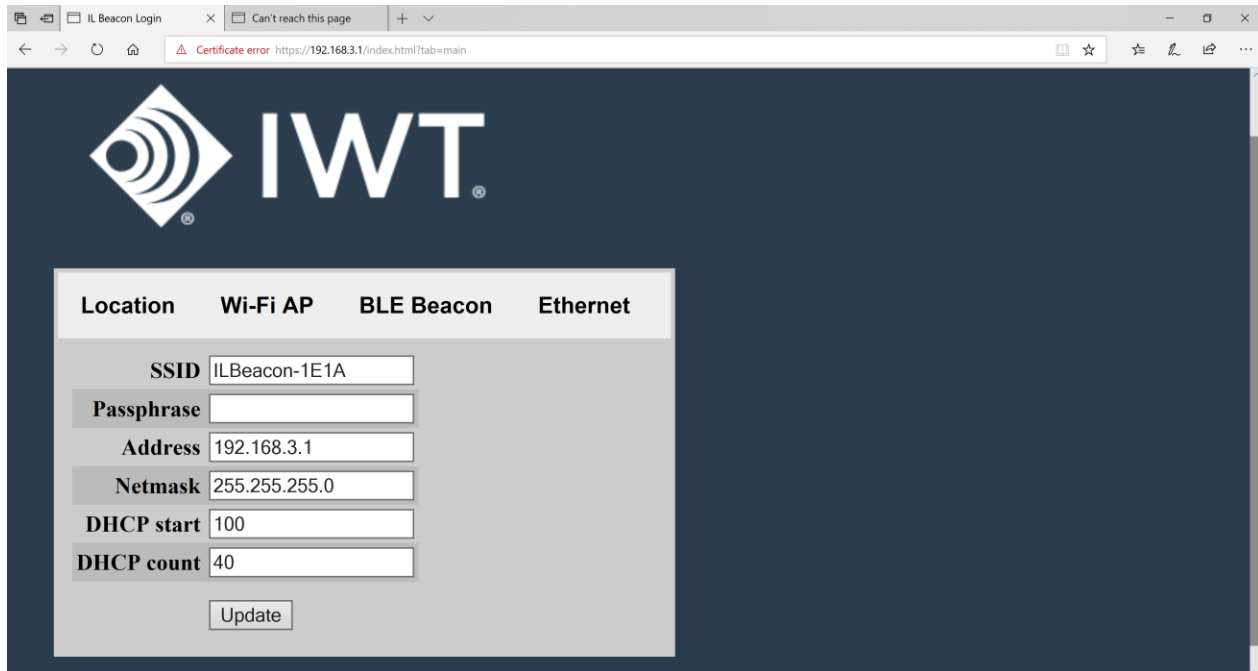


Figure 6 – Wi-Fi AP Configuration Screen

The last four digits of the SSID match the ID of the individual ILB device (labeled on enclosure). The **Passphrase** is the network security key used to connect to the device. The default Passphrase for each ILB is **Beacon123**. To change the SSID or Wi-Fi Passphrase, enter new values in the text box and press the **Update** button at the bottom of the screen. The update may take up to 30 seconds.

The **BLE BEACON** screen includes information necessary to configure the Bluetooth Low Energy beacon:

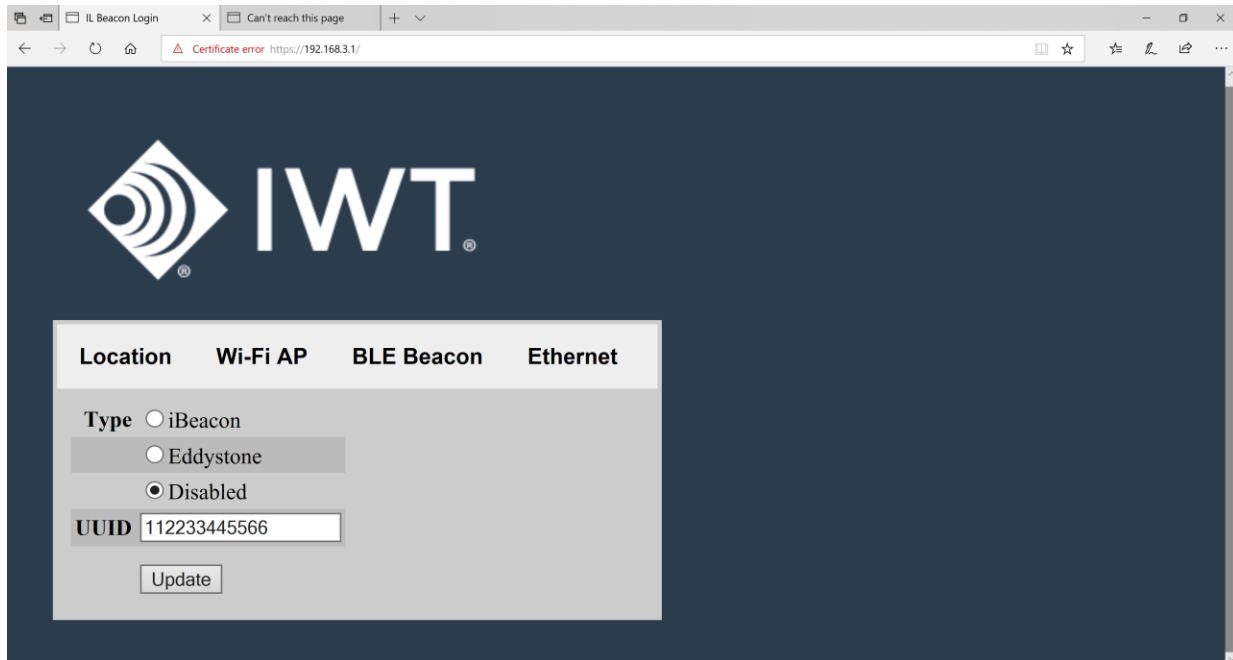


Figure 7 - BLE Beacon Configuration Screen

The ILB's BLE beacon is **Disabled** by default. To enable the Bluetooth beacon, select the desired Beacon type (iBeacon or Eddystone) and press the **Update** button at the bottom of the screen. If the beacon is not detected, power cycle the device.

The Bluetooth UUID may be changed by entering a new value and pressing the **Update** button at the bottom of the screen. Note: The default UUID is the same for all ILBs.

Selecting the **ETHERNET** tab opens a screen with information pertaining to an Ethernet connection to the device.

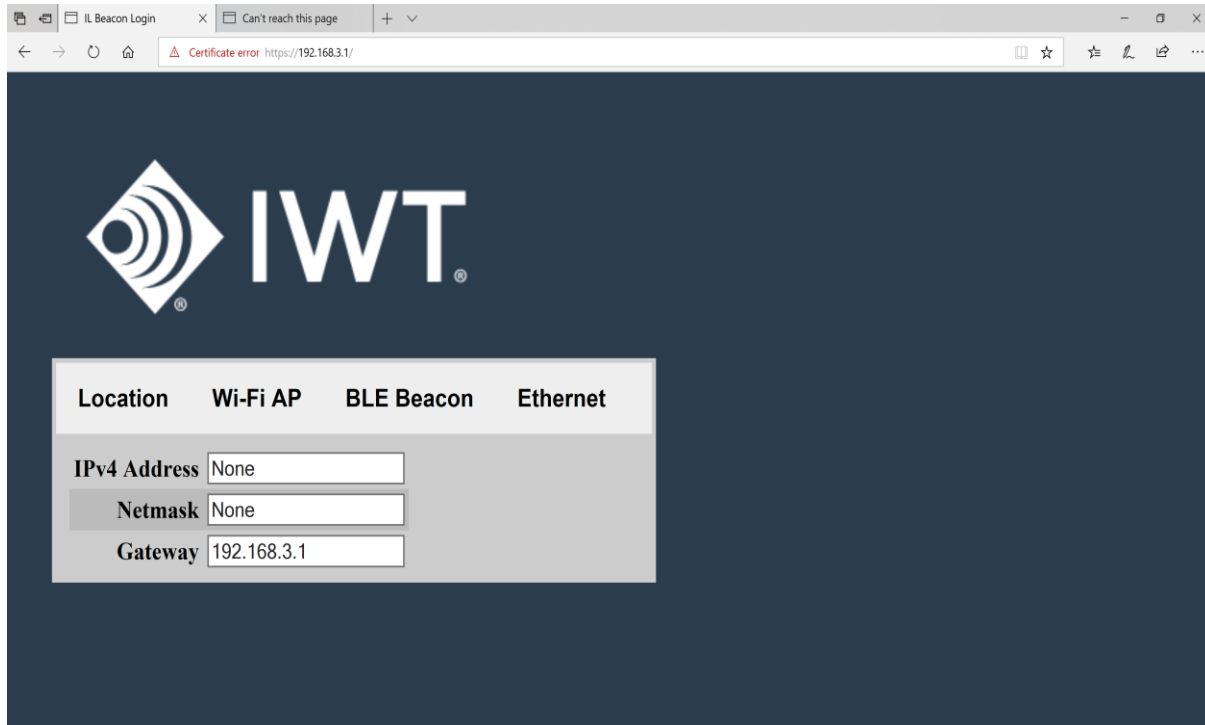


Figure 8 - Ethernet Configuration Screen

If the ILB is connected wirelessly to a laptop/tablet/phone for configuration, the IPv4 Address and Netmask boxes will indicate 'None' as in the figure above.

6. INSTALLATION

IMPORTANT! TRAINED PERSONNEL MUST PROFESSIONALLY INSTALL THE ILB.

6.1 SITE SURVEY

Conduct a survey to determine the appropriate sites to install the ILBs.

6.2 MOUNTING AN ILB

The ILB may be mounted to a wall or ceiling tile using four 'blind' mounting holes. The mounting holes are accessed by lifting the flaps on the enclosure lid as shown in Figure 9.

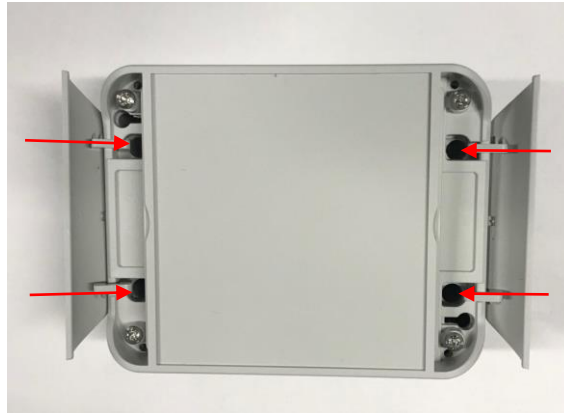


Figure 9 - ILB Mounting holes

An optional aluminum mounting bracket is available for use with the ILB.

Note: The ILB should not be installed in plenum spaces above ceiling tiles.

7. OPERATING AND MAINTENANCE INSTRUCTIONS

7.1 POWERING THE ILB

The ILB is automatically powered ON when a PoE input cable is plugged into the RJ45 connector on the back of the device. The ILB does not have an ON/OFF switch. Disconnecting the PoE input will remove power from the device.

7.2 STATUS LEDS

The status of the ILB's connection to power and the Wi-Fi / Bluetooth network may be monitored by observing the blink pattern of the indicator LED mounted on the outside of the enclosure:

Solid **RED**: Device booting when initially powered ON

Solid **GREEN**: Power on, normal beacon operation

Blinking **GREEN**: Used to identify the device during configuration (see Section X.X)

7.3 CHANGING THE COFIGURATION OF AN ILB

The configuration of the ILB may be changed using the internal Configuration Webpage described in Section 5 above. Follow the instructions in Section 5 for connecting to the ILB and opening the Webpage.

8. WARRANTY INFORMATION

Never disassemble the ILB. Doing so will void your warranty. If an ILB is damaged, do not use it.