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## Thin Gateway User Manual

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Silicon Labs Thin Gateway is a small form factor, full-featured Ethernet-to-ZigBee Gateway. The Thin Gateway acts as a bridge between a low-power RF ZigBee network (running on 802.15.4) and an IP network running on Ethernet (802.3).

This uses the Silicon Labs EM358x System-on-chip (SOC) for ZigBee communication and as the host for the Ethernet driver and IP stack. The Thin Gateway features a tri-color LED, one button, and onboard serial flash chip.

This document provides information on how to use the Thin Gateway.

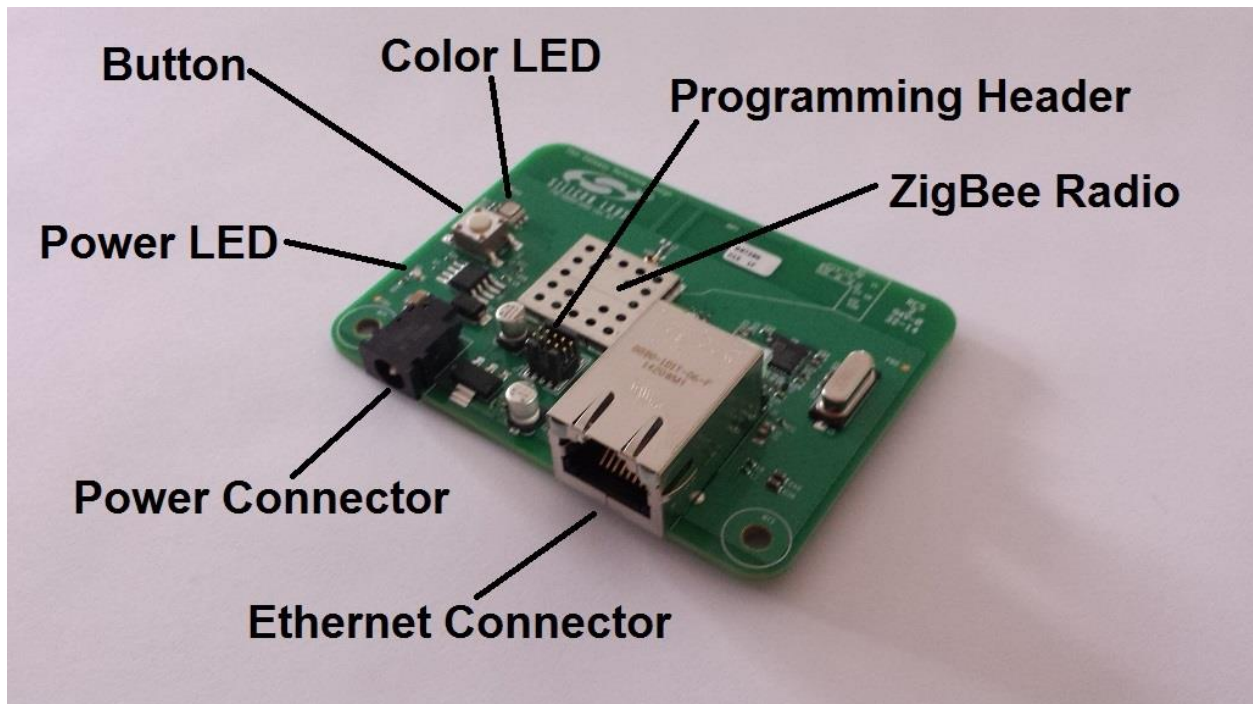
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## 1.0 Thin Gateway Features

The Thin Gateway has the following features

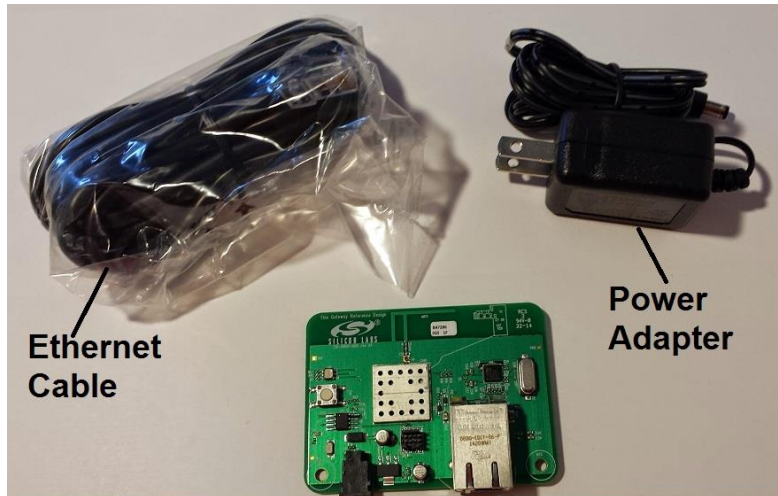
- 802.15.4 Radio for connecting to low-power ZigBee RF networks
- Ethernet Connector (RJ-45) for connecting to IP networks
- Power Connector for Power Adapter
- Button
- Green LED for Power indication
- Tri-Color LED
- InSight Programming Header



## 2.0 Contents of the Kit

The Thin Gateway Kit contains:

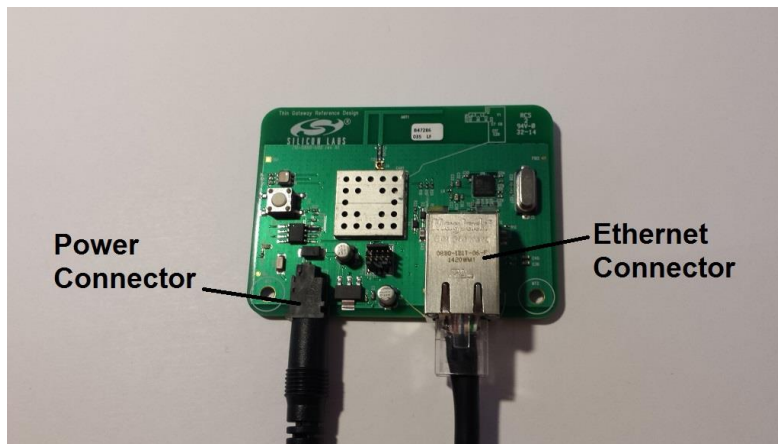
- 1 Thin Gateway
- 1 Ethernet cable
- 1 Power Adapter



## 3.0 Setting up the Thin Gateway

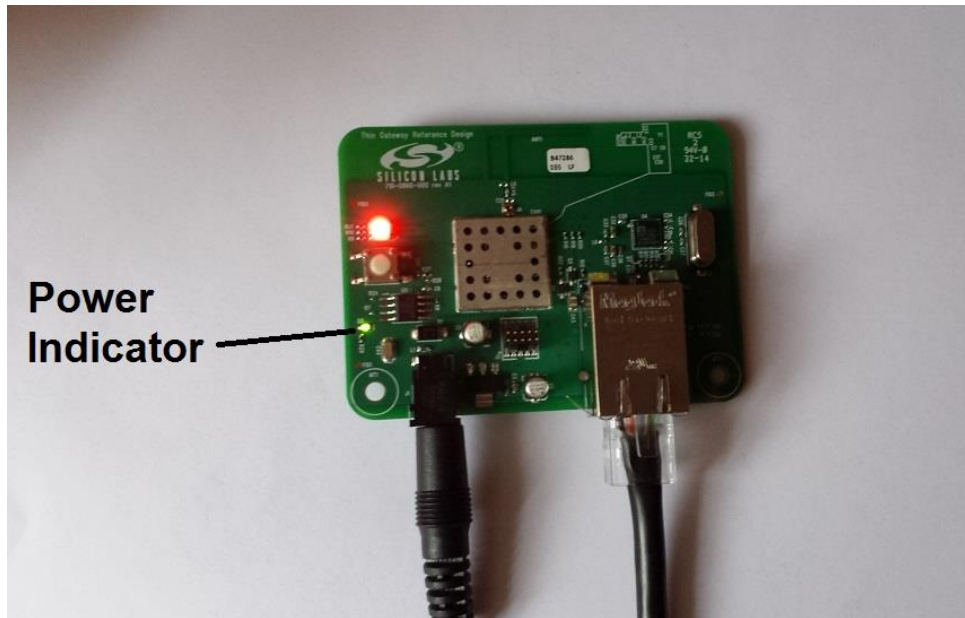
To setup the Thin Gateway follow these steps

1. Attach the included Ethernet cable to an Ethernet Router
2. Attach the Ethernet cable to the Thin Gateway (see picture)
3. Attach the Power Adapter to a power source
4. Attach the Power Adapter to the Power Connector on the Thin Gateway (see picture)



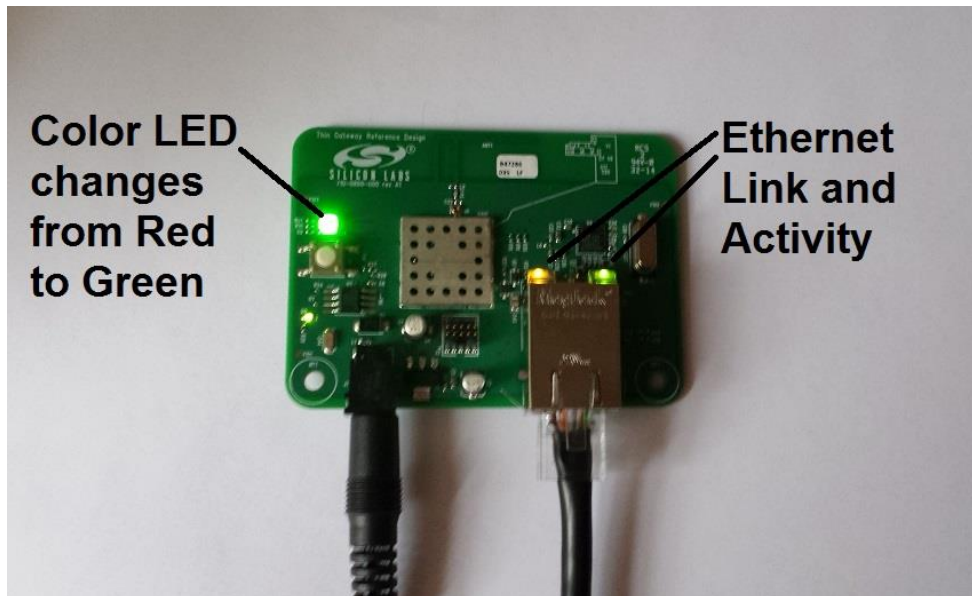
### 3.1 Checking for Power

Once the Thin Gateway has been plugged in, see the Power Indicator LED to determine if the Gateway is being powered



### 3.2 Checking for Ethernet Connectivity

Once the Thin Gateway has been plugged in to power and Ethernet, the Tri-Color LED will indicate if the Gateway has a good Ethernet Link. The LED will change from Red to Green on Gateway boot up.



## 4.0 Running an Application

An Ember Application can be loaded onto the Thin Gateway using the Programming Header and a Silicon Labs Ember ISA3. Please see the Silicon Labs Ember Development Kit for more information.

<http://www.silabs.com/products/wireless/zigbee/Pages/zigbee-ember-dev-kits.aspx>



## 4.1 Application Power Level Settings

The Application should use the power settings in Table 1 as the maximum power setting. The actual output power will be +20 dB from these settings.

| <b>802.15.4 Channel</b> | <b>Power Setting</b> |
|-------------------------|----------------------|
| 11 – 17                 | -1                   |
| 18                      | -2                   |
| 19 – 24                 | -1                   |
| 25                      | -20                  |
| 26                      | -26                  |

**Table 1: Maximum Power Settings**

## Appendix: Regulatory Information

### A.1 FCC 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.

This product has been tested and complies with the specifications 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 according to 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 is found by turning the equipment off and on, the user is encouraged to attempt to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

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

### A.2 FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

## CONTACT INFORMATION

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Please visit the Silicon Labs Technical Support web page for ZigBee products:

[www.silabs.com/zigbee-support](http://www.silabs.com/zigbee-support) and register to submit a technical support request

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