SensiTHING: Environmental Monitoring Module with Wireless Charging Capability

Based on a Single-Chip Arm® Cortex®-M4 MCU with Bluetooth® Low Energy 5.0 (BLE 5.0)

SensiTHING is an Arm®-based high-performance System on Module (SoM) ideal for environmental sensing applications. SensiTHING features Bluetooth® Low Energy (BLE) 5.0 connectivity and an array of sensors including a smoke detector, accelerometer, temperature, and more.

A companion Li-Ion wireless charging board allows devices to be charged, even when sealed within enclosures. This eliminates the need for bulky connectors, making the end product easy to use, robust, and sleek. Low-power design ensures continuous operation for months without charging. SensiTHING enables wireless connectivity, not requiring any RF experience or expertise. The on-board module is certified for global markets.

Benefits

- **Rapid prototyping and product development** – Quick prototyping, rapid development and testing of products
- **Fast time to market for customer products** – Out of the box use case support for environmental monitoring
- **BLE 5 connectivity without RF expertise** – Easy to design, certified module
- **Reliable yet compact sensing design** – Engineered to meet EN54/14604 and the new UL217 regulatory requirements
- **Wireless charging design** – Allows for completely sealed enclosures and eliminates need for external connectors
- **Quick customization services** – Add new functionality, lower BOM cost, or have the complete product designed

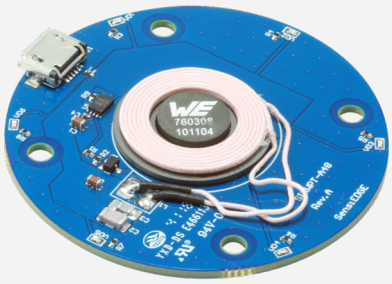
SensiTHING Use Cases:

Environmental sensing in

- Home and commercial buildings
- Factories and manufacturing locations
- Smart cities
- Mines, oil & gas drill sites

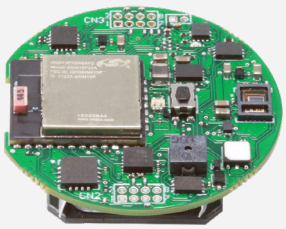
SensiTHING: Environmental sensing module with wireless charging capability

Diameter 48mm



Wireless Charger Transmitter
(Part #: SIRWPT-A48)

Diameter 32mm



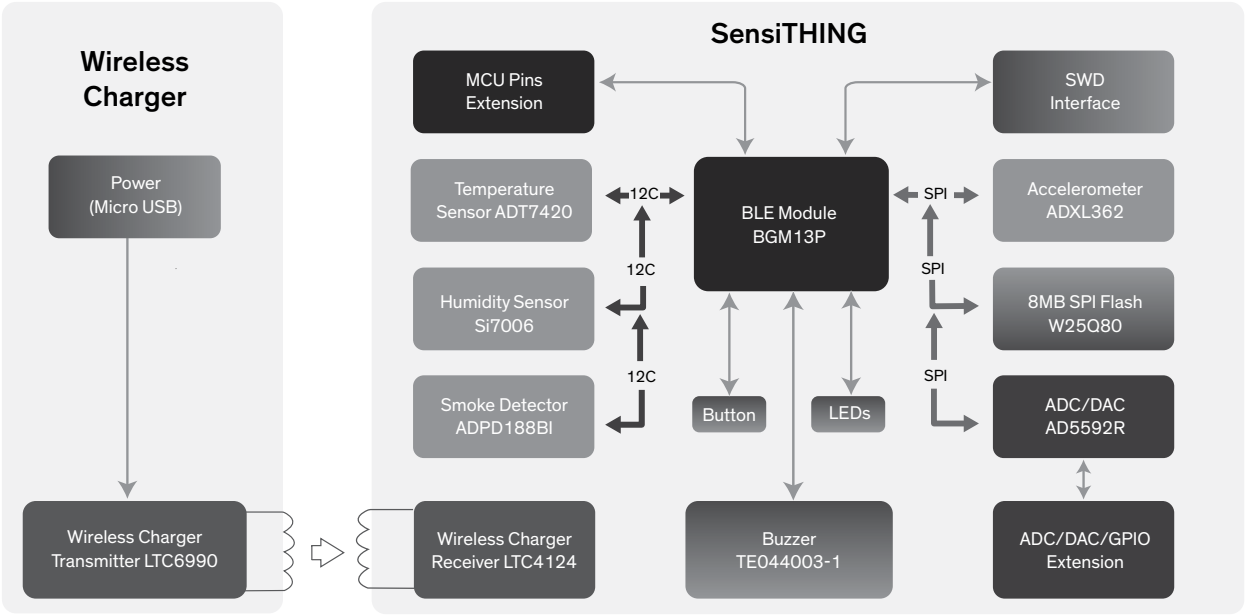
SensiTHING Module with Wireless Charger Receiver
(Part #: SIBAS-WPR32)

Getting Started

SensiTHING includes all the necessary tools to speed up the development process

- Demo project with single firmware for all sensors
- Windows BLE SDK: Open source SDK to develop application on windows desktop
- Schematics, mechanical drawing and 3D STEP models

SensiTHING Block Diagram



Key Features

Wireless MCU:

- Silicon Labs' BGM13P Blue Gecko Bluetooth® Module
- Arm® Cortex® M4 processor with DSP extensions
- Bluetooth® 5.0 LE and Bluetooth® Mesh support
- Flash/RAM (kB): 512/64
- Interfaces include UART, SPI, ADC, DAC, and I/Os
- FCC, CE, IC/ISEDC, MIC/Telec certified

Sensors:

- Analog Devices' optical module for smoke detection (ADPD188BI) which includes two LEDs, photodiode, and Analog Front-End (AFE) integrated together in a single package
- Analog Devices' low-power 3-axis accelerometer (ADXL362)
- Analog Devices' ±0.25 °C accurate temperature sensor (ADT7420)
- Silicon Labs' humidity sensor (Si7006-A20)

Wireless Charging:

- Wireless charging design based on leading edge technology from Analog Devices
- Wireless transmitter based on voltage-controlled silicon oscillator (LTC6990)
- Wireless power receiver and 400mA buck battery charger (LTC4124)
- Battery gas gauge to measure battery charge state, voltage, and chip-temperature (LTC2942)

Ordering Information

Part numbers for SensiTHING boards and kits are below.

- **SensiTHING development kit:** SIBAS-WC-DKL (includes module, wireless charger, and connector board)
- **SensiTHING module:** SIBAS-WPR32
- **Wireless charger transmitter:** SIRWPT-A48
- **Connector board for programmer:** SEDA-10

SensiTHING Wiki for documentation and code

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SensiTHING Wiki for documentation and code

Five Years Out

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