



WELCOME

Unboxing the BG220 Explorer Kit

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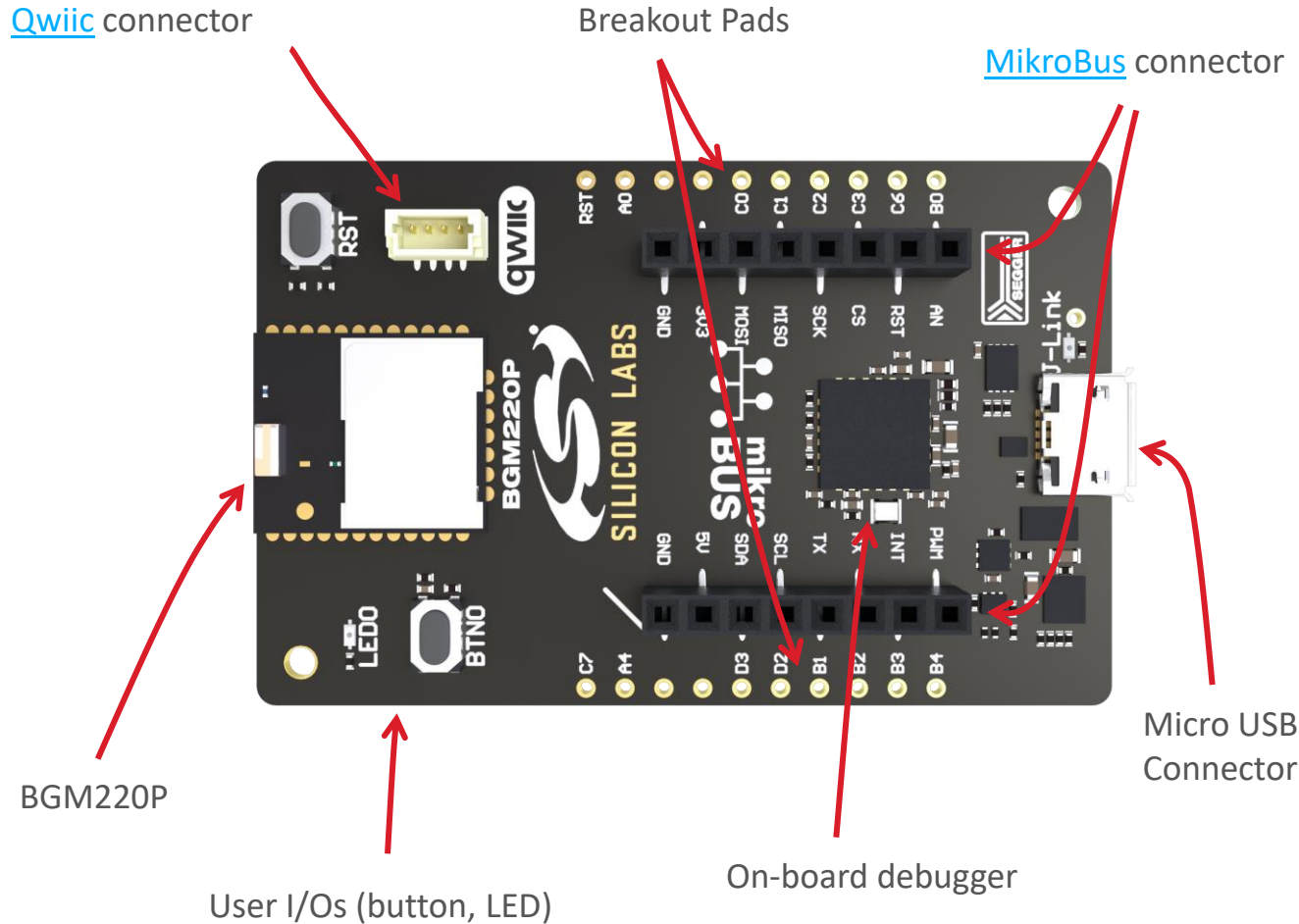


Agenda

- Introduce BGM220 Explorer Kit (BGM220-EK4314A)
- Rapid Prototyping Eco Systems
- BGM220 EK Documentation and Tools
- Demonstration
- Q & A

BGM220 Explorer Kit – Features Overview

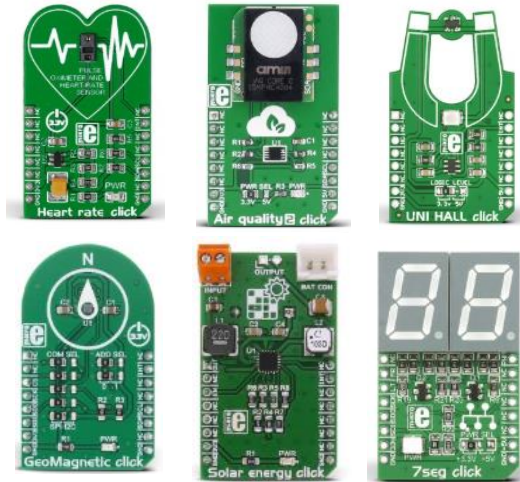
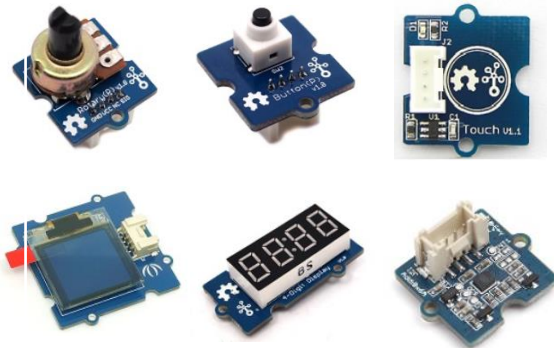
Simplified features but endless possibilities



Features

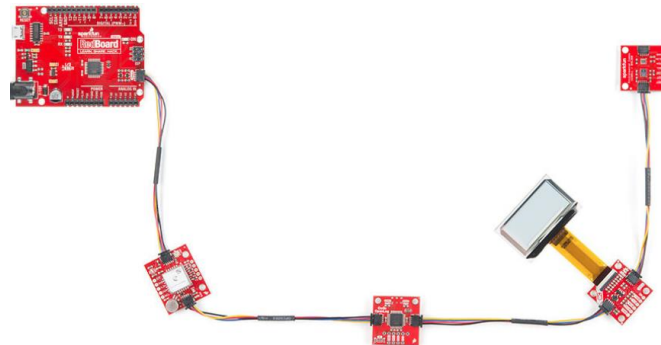
- BGM220P module
 - ARM Cortex M33 – 76.8MHz, 512kB Flash, 32kB RAM
 - Bluetooth 5.2, 1.4uA EM2 with Full RAM Retention
- On-board debugger
 - USB for power and communication
 - J-Link, VCOM (with hardware flow control), PTI
 - Seamless DX experience in SS
- Simple user I/O for basic peripheral usage
 - Reset button, 1 user button, 1 user LED
- Standard HW expansion connectors
 - Rapid prototyping with off-the-shelf boards
 - mikroBus and qwiic (compatible with Groove and Stemma QT)
- Breakout pads for additional hardware customization
 - Aligned with breadboard dimensions
- Kit contains USB cable

IoT Rapid Prototyping



Focusing on simple peripheral expansions

- 3rd party ecosystems (shields, hats, click-boards) allows development based on off-the-shelf expansion hardware
- Widely used for quick prototyping, especially within hobbyist and maker communities
- MikroE (mikroBUS), Seed Studios (Grove), SparkFun (Qwiic) and adafruit(STEMMA/STEMMA QT) offer a wide variety of small and modular options for IoT end nodes, which typically revolve around sensors, UI and actuators
- Grove, qwiic and STEMMA QT are pin compatible
 - One connector can support multiple ecosystems
 - Only requires adapter [cable](#) or [board](#)
- MikroE alone offers
 - **250** sensor boards
 - **40** display and LED boards
 - ...all with 3.3V input voltage support



Rapid Prototyping System Comparisons

Controller/Device	mikroBUS Click MIKROE	STEMMA adafruit	STEMMA QT adafruit	Grove Seeed	Qwiic SparkFun	Gravity DFRobot
Connection	Proprietary mikroBUS Socket (16 Pin)	JST PH 3 or 4 Pin (2.0mm pitch)	JST SH 4 Pin (1.0mm pitch)	Proprietary 4 Pin (2.0mm pitch)	JST SH 4 Pin (1.0mm pitch)	JST PH 3 or 4 Pin (2.0mm pitch)
Power Supply Rails	3-5V DC	3-5V DC	3-5V DC	3-5VDC	3V DC	3-5V DC
GPIO Voltage	3-5V DC	3-5V DC	3-5V DC	3-5V DC	3V DC	3-5V DC
Supported Interfaces	I2C/SPI/UART/ Analog/Digital/PWM	I2C only on 4 pin. Analog/Digital/PWM on 3 pin.	I2C only	I2C/Analog/Digital/PWM on 4 pin	I2C only	I2C or UART on 4 pin. Analog/Digital/PWM on 3 pin.
Website	https://www.mikroe.com/click-boards	https://learn.adafruit.com/introducing-adafruit-stemma-qt/what-is-stemma	https://learn.adafruit.com/introducing-adafruit-stemma-qt/what-is-stemma-qt	https://www.seeedstudio.com/grove.html	https://www.sparkfun.com/qwiic	https://www.dfrobot.com/topic-282.html

BGM220 Explorer Kit – Collateral

- User Guide: <https://www.silabs.com/documents/public/user-guides/ug465-brd4314a.pdf>
- Getting Started Guide: <https://docs.silabs.com/bluetooth/latest/general/getting-started#getting-started-with-bgm220-explorer-kit>
 - Porting Code from mikroSDK and Arduino
- [GitHub Repository](#)
 - Available Now: [Barometer](#), [HRM](#), and [I2C Accelerometer](#)
 - Coming in the next 2-3 weeks: OLED Display, 7 Segment Display + Joystick
 - Coming in the next 2 Months: Contactless Temperature Sensor, Combo Environment Sensor, and SPI Accelerometer

Simplified Developer Experience

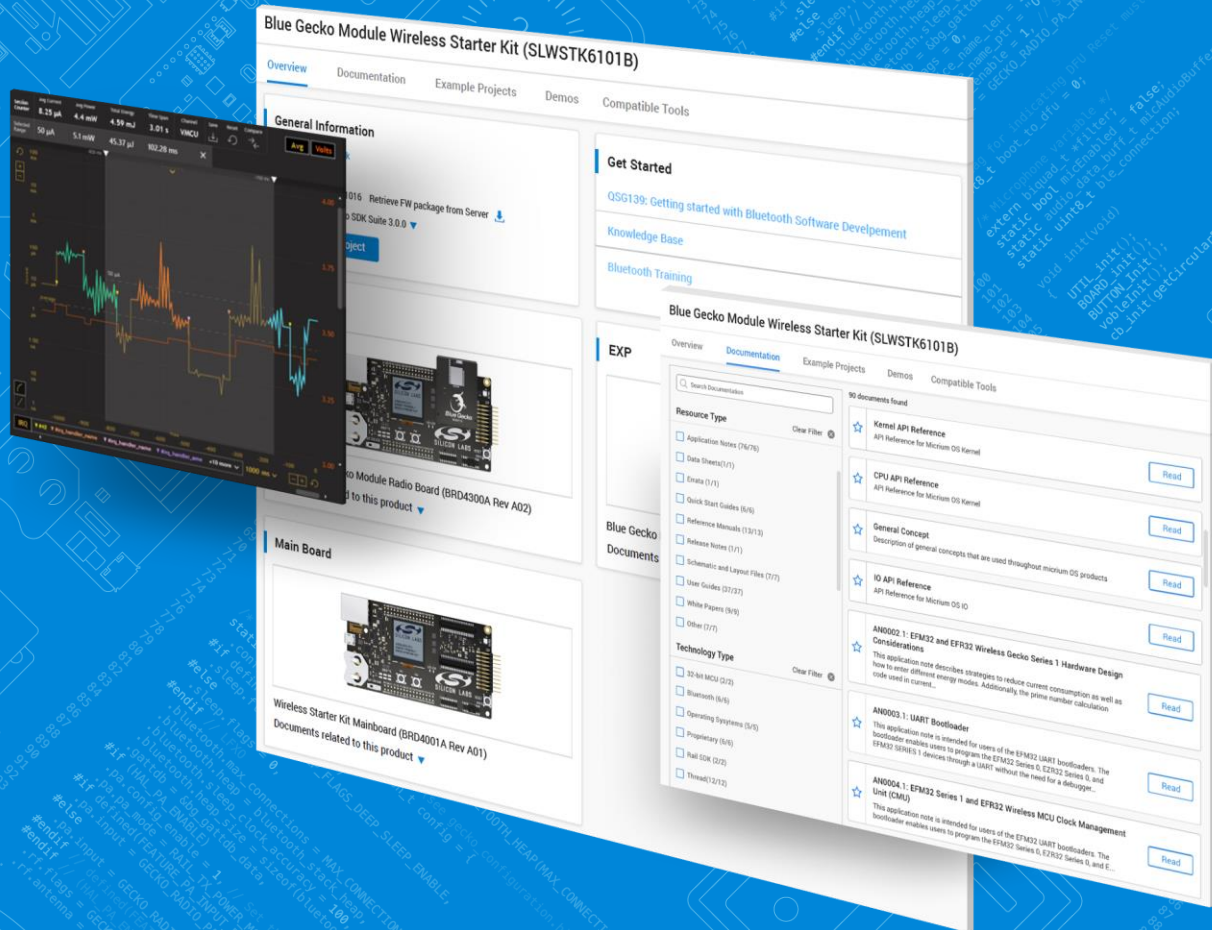
- [Simplicity Studio 5](#)

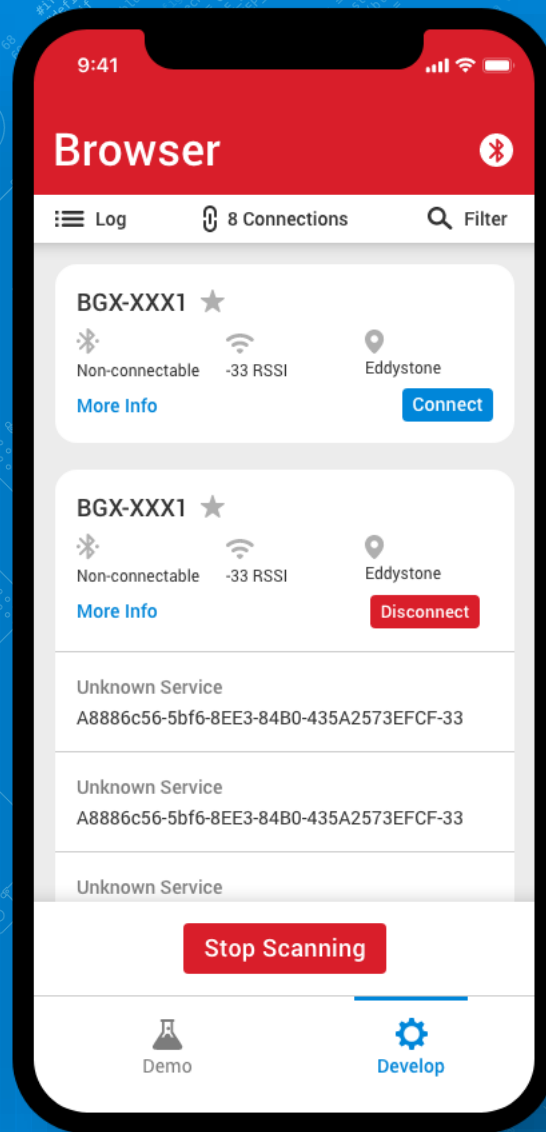
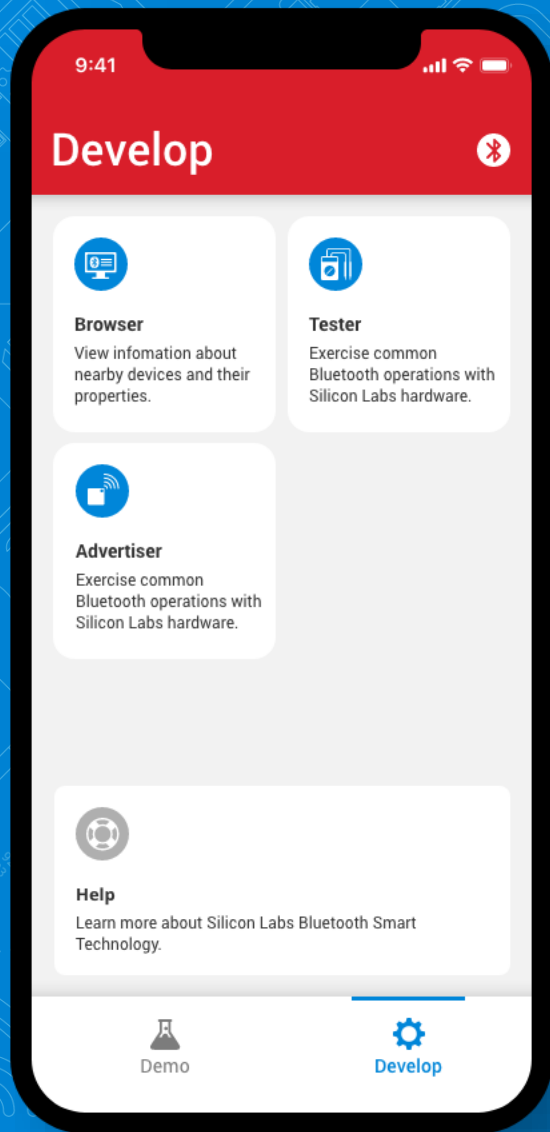
- **Interface**

- Fresh, new & simplified
 - Intuitive out-of-the-box experience
 - Fast access to developer resources
 - Linux, Mac & Windows

- **Tools**

- Configuration utilities
 - Compiler
 - Error & validation
 - IDE & command line support
 - Graphical hardware configurator
 - Energy Profiler – visual energy analysis
 - Network Analyzer – packet capture & decode



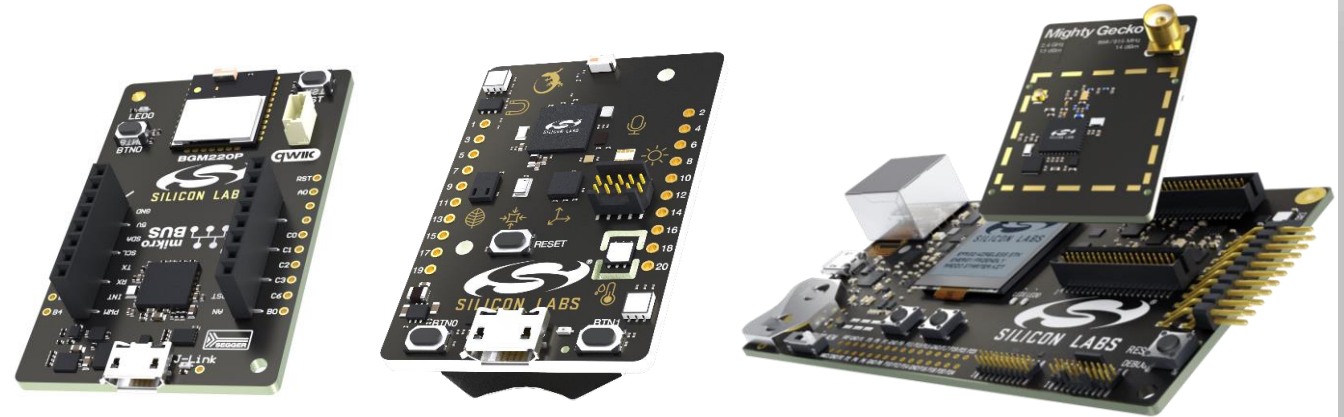


Enhanced Development with EFR Connect

- **Redesigned and simplified developer app**
 - Redesigned UI to forefront key BLE device metrics
 - App-delivered tools support BLE code development
 - Improved stability and reliability
- **Developer-focused features**
 - Simultaneous connections for broader visibility
 - Log and export BLE activity
 - Powerful filtering options to identify devices
 - Save custom UUID to better organize a GATT
- **Try it today**
 - Replaces Silicon Labs Blue Gecko mobile app
 - Available on [iOS](#) and [Android](#)
 - Source code available on [GitHub](#) ([Android](#), [iOS](#))

IoT Hardware Development Tools – Feature Comparison

	Explorer Kit	Dev Kit	Pro Kit
Debug Speed	1.6MHz	1.6MHz	8MHz
Debug USB	Full Speed	Full Speed	High Speed
Packet Trace Interface (PTI)	✓	✓	✓ 2x
Breakout Pads	✓	✓	✓
Pushbuttons & User LEDs	✓	✓	✓
Virtual COM	✓	✓	✓
Coin cell battery holder	–	✓	✓
On-board Sensors	–	✓	✓
Battery Pack Connector	–	✓	✓
Radio Board Connectors	–	–	✓
EXP Connector	–	–	✓
Display	–	–	✓
Debug OUT	–	–	EFM8/32, EFR32, EZR32
Debug Ethernet	–	–	100 Mbit/s
Energy Monitor (AEM)	–	–	✓
3 rd Party Hardware addons	✓	–	–



Explorer Kit

- Lowest price point
- On-board debugger and signal breakouts
- Minimal on-board features
- 3rd part hardware support
- New Category

Dev Kit

- Single device development board
- On-board debugger and signal breakouts
- On-board sensors
- Impressive out-of-the-box demos
- Evolution from Thunderboard

Pro Kit

- Modular development platform
- Advanced development use cases
- Energy profiling and external device debug
- Ethernet for large network test
- Designed to maximize reuse of EFR32 devices
- Evolution from WSTK

MikroE - Silabs Click Shield



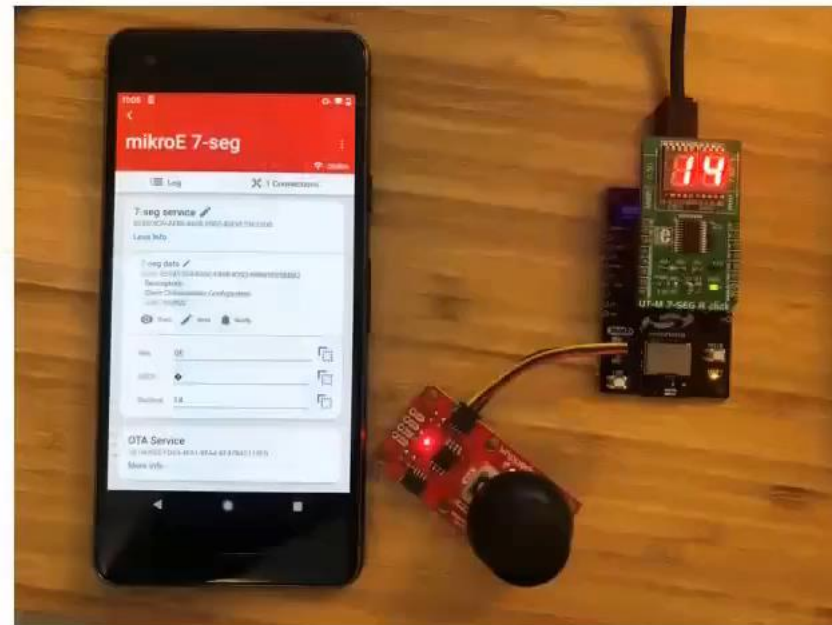
- Works with Silabs Development Boards:
 - WSTK – Wireless Starter Kit or Pro Kit
 - MCU Development Boards
 - Thunderboard or Dev Kit
- <https://www.mikroe.com/silabs-click-shield>
- Part Number: MIKROE-4464



Demonstration



- Walk through docs.silabs.com, Github and Simplicity Studio 5
- Demo 1) Pressure Sensor – Precompiled Image
- Demo 2) Joystick and 7 Segment Display – Import Project





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Q&A

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Community





THANK YOU

Recording and slides will be posted to:
www.silabs.com/training

