

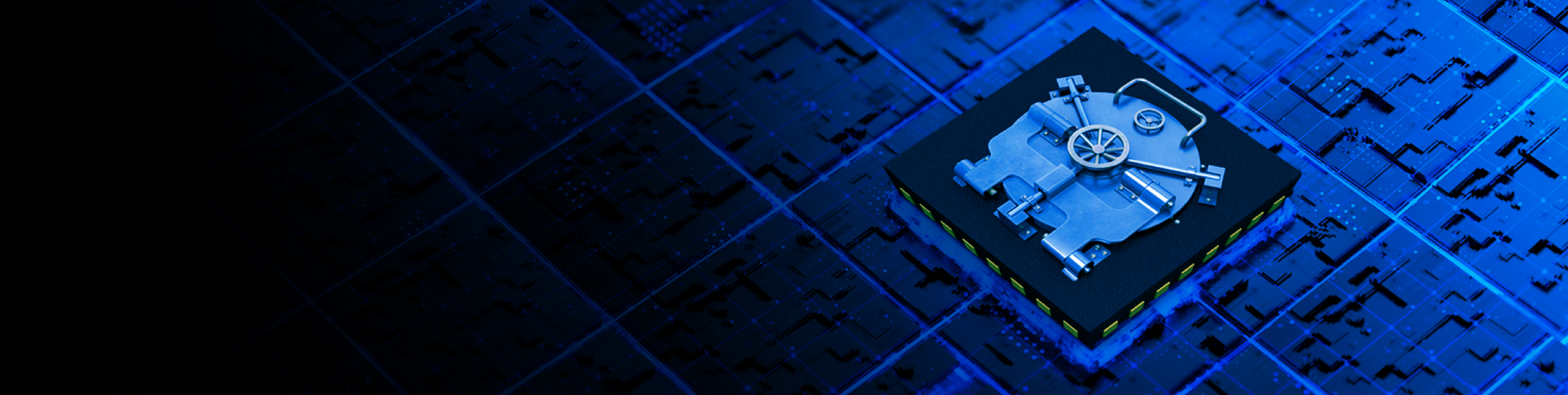


Z-Wave 800 Series

Introduction to Z-Wave 800 Series

The Z-Wave 800 series is the latest edition of the world's most popular Z-Wave wireless IoT mesh protocols for smart homes. The Z-Wave 800 series enables device makers to develop exceptional smart home experiences through reliable sub-GHz wireless, robust security, battery friendly power consumption, and easy Smart Start commissioning. The Silicon Labs [ZG23](#) and [ZGM230S](#) hardware are the most secure Sub-GHz wireless solution featuring the Z-Wave 800 wireless mesh protocol. The [Z-Wave 800](#) series is designed to meet the demands of smart home, hospitality, and multi-dwelling unit (MDU) IoT segments today and in the future. It is an optimal wireless protocol for applications where long-range, high performance, low power, and increased device security are vital – these include smart lighting, thermostats, door locks, garage door openers, switches, home cameras, sensors and more.





Z-Wave 800 Series Hardware

The sub-GHz solutions from Silicon Labs provide long-range connectivity that can penetrate walls, effectively reducing interference. The solution enhances IoT end node performance by optimizing power consumption, processing, and wireless range.

The [ZG23](#) SoCs and [ZGM230S](#) modules provide the most secure sub-GHz wireless solutions featuring Z-Wave S2 and Silicon Labs' proprietary Secure Vault™ security suite, enabling the first wireless solutions with the highest PSA Certification Level 3 security. This ensures protection of connected smart home products, data, IP, and users against constantly evolving security threats. Some other key highlights are:

- Low sleep and active currents for MCU and radio, enabling 50% longer battery life than Z-Wave 700 series.
- Up to 10 years of coin cell battery life.
- Industry-leading ARM Cortex-M33 microprocessor delivering ~20% more processing power than Cortex-M4.
- Z-Wave Long Range (LR), enabling wireless range beyond 1.5 miles.

The ZG23 and ZGM230S series are backward compatible with their predecessor Z-Wave protocol editions.

ZG23 SoC

The Silicon Labs ZG23 SoC is a single-die solution that comes with a 78 MHz ARM Cortex-M33 with a high-performance sub-GHz radio providing low power, low cost, long-range, and secure wireless SoC solution. The ZG23 wireless SoCs offer ultra-low transmit current (9.8 mA @ 0 dBm) and ultra-low receive current (4.0 mA), resulting in drastically increasing battery life up to 10 years. The SoCs also offers the best-in-class RF output power of up to +20 dBm and RX sensitivity of -110 dBm (100 kbps O-QPSK), allowing the IoT end nodes to achieve a wireless range of over 1.5 miles.

ZG23 wireless SoCs add the highest level of device security with Secure Vault™ and Z-Wave S2. Secure Vault helps protect connected products, data, and intellectual property against evolving security threats. It also provides future proofing for coming security regulations. Secure Vault technology combines best-in-class security software, and hardware technology features like a physically unclonable function (PUF) secure key storage mechanism to significantly reduce the risk of IoT security breaches. Secure Vault Attestation and Secure Boot can be used to ensure the Silicon Labs product in the customer end device is not cloned or tampered with, and that it is running secure code at any point in the lifecycle. ZG23 also supports UL-1023 Certification which is a standard for household burglar-alarm system units.







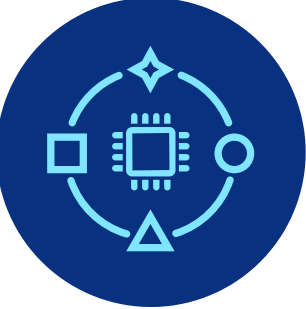




ZGM230S Module

The Silicon Labs [ZGM230S](#) is a small form-factor (6.5mm x 6.5mm) System-in-Package (SiP) module for Z-Wave 800 connectivity and networking. It delivers robust RF performance, long-range, industry-leading security features, low-current consumption, and a rich set of MCU peripherals.

Z-Wave 800 Series Benefits

The users of Silicon Labs' [ZG23](#) and [ZGM230S](#) wireless solutions enjoy these benefits:

-  1. **Longer battery life** – The Z-Wave 800 series reduces transmit current up to 42% and reduces receiver current up to 600% compared to Z-Wave 700 hardware, delivering up to 10 years of battery life with a coin cell.
-  2. **Extended wireless range** – The Z-Wave 800 series can achieve range up to 1.5 miles, a 50% increase compared to the [Z-Wave 700](#) series, therefore delivering wireless connectivity well beyond the yard.
-  3. **In-built S2 security** - Protects against security threats and reduces the investment for device makers by reducing security design and expertise.
-  4. **Secure Vault** – Silicon Labs' industry-leading security suite enables secure sub-GHz wireless connectivity, protecting the IoT connected products, customers, data, intellectual property, and backend services against evolving security threats.
-  5. **Continual security development** – Silicon Labs leads the market in IoT security development, reducing device makers' risks and investments while ensuring compliance with the latest IoT security regulations .
-  6. **Brand protection** – The best-in-class product specifications when combined with Silicon Labs hardware enable a better smart home product experience.
-  7. **Faster processing** – Through ARM Cortex- M33 microprocessor at 78 MHz.
-  8. **LESENSE (+ACMP)** – Allows for low power switch detection and associated battery life improvements.
-  9. **Reduced Development Cost and Time to Market** – Allows for easier market access owing to readily available solutions with the ZGM230S module.



Why the Z-Wave 800 Series?

Since its initial launch 20 years ago, the Z-Wave protocol has evolved through several successful versions, which are fully interoperable. Currently, there is a vast installed base of devices using [Z-Wave 500](#) and [Z-Wave 700](#) versions. But, which version should you choose as a device maker and developer? Why build smart home products on Z-Wave 800? Read our blog, [Z-Wave 500 vs. 700 vs. 800 comparisons](#), which explains the differences and why should you go with the [Z-Wave 800 series](#).

Learn More about Silicon Labs Z-Wave 800 Series

All necessary resources for ZG23 are available under [Silicon Labs Z-Wave 800 documentation](#). These documents and software tools, and kits help customers design their Smart Home IoT devices with ease. The Simplicity Studio development platform allows developers to run precompiled demos, application notes, and examples that suit their design needs. Customers can also use the [Silicon Labs community](#) and [Technical Support](#) for more information on the Z-Wave 800 series and reach out to experts with any questions.