

ZGM230S Z-Wave SiP Module Data Short



The ZGM230S is a system-in-package (SiP) module for Z-Wave connectivity and networking built for the performance, security, and energy demands of the Smart Home.

Based on the EFR32GG23 SoC, it delivers robust RF performance, long-range, industry-leading security features, low-current consumption, a rich set of MCU peripherals, ample memory, and a wide operating temperature range, all in a 6.5 x 6.5 mm package.

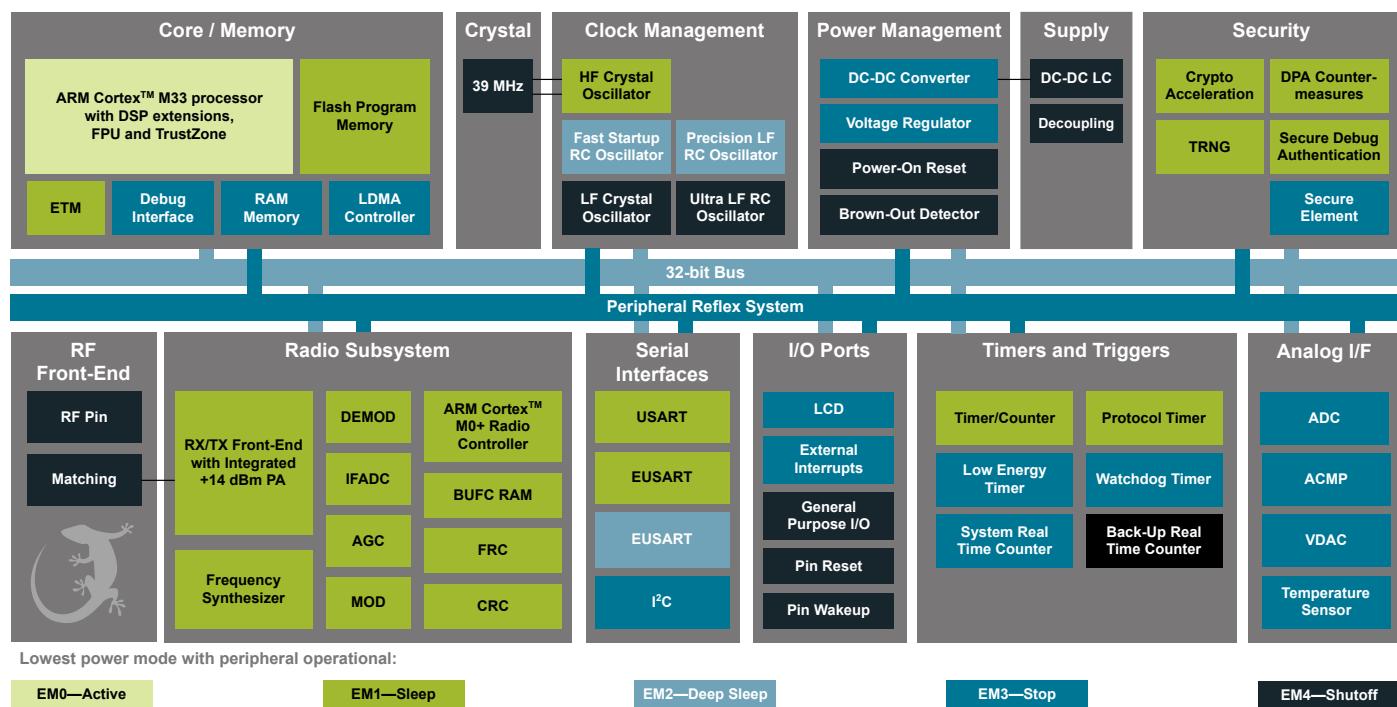
The ZGM230S is a complete solution supported by powerful and fully-upgradeable software, advanced development and debugging tools, and documentation that will simplify and minimize the development cycle, certification process, and deployment of your end-product, helping to accelerate its time-to-market significantly.

The ZGM230S is targeted for a broad range of applications, including:

- Smart Home
- Security
- Lighting
- Building Automation

KEY FEATURES

- Z-Wave connectivity
- RF pin for external antenna
- +14 dBm TX power
- -110.9 dBm RX sensitivity @100 kbps
- 32-bit ARM Cortex-M33 core at 39 MHz
- 512/64 kB of Flash/RAM memory
- Advanced security features
- Rich set of MCU peripherals
- Integrated DC-DC converter
- Up to 34 GPIO pins
- -40 to 85 °C
- 6.5 mm x 6.5 mm



1. Features

• Supported Protocols

- Z-Wave
- Z-Wave Long Range

• Wireless System-on-Chip

- Sub GHz radio
- TX power up to +14 dBm
- 32-bit ARM Cortex®-M33 with DSP instruction and floating-point unit for efficient signal processing
- 512 kB flash program memory
- 64 kB RAM data memory
- Embedded Trace Macrocell (ETM) for advanced debugging

• Receiver Performance

- -110 dBm sensitivity at 9.6 kbps FSK, 868 MHz
- -110 dBm sensitivity at 40 kbps FSK, 868 MHz
- -108.8 dBm sensitivity at 100 kbps GFSK, 868 MHz
- -109.4 dBm sensitivity at 9.6 kbps FSK, 915 MHz
- -109.7 dBm sensitivity at 40 kbps FSK, 915 MHz
- -108.3 dBm sensitivity at 100 kbps GFSK, 915 MHz
- -110.9 dBm sensitivity at 100 kbps O-QPSK, 915 MHz

• Current Consumption

- 4.8 mA RX current at 9.6 kbps FSK, 868 MHz
- 4.8 mA RX current at 100 kbps GFSK, 868 MHz
- 4.8 mA RX current at 9.6 kbps FSK, 915 MHz
- 4.8 mA RX current at 100 kbps GFSK, 915 MHz
- 5.1 mA RX current at 100 kbps O-QPSK, 915 MHz
- 10.7 mA TX current at 0 dBm, 915 MHz
- 20.8 mA TX current at +10 dBm, 915 MHz
- 30.0 mA TX current at +14 dBm, 915 MHz
- 42 µA/MHz in Active Mode (EM0) at 39.0 MHz
- 0.16 µA Shutoff Mode current (EM4)

• Operating Range

- 1.8 to 3.6 V
- -40 to +85°C

• Dimensions

- 6.5 mm x 6.5 mm

• Security

- Hardware Cryptographic Acceleration for AES128/192/256, ChaCha20-Poly1305, SHA-1, SHA-2/256/384/512, ECDSA +ECDH(P-192, P-256, P-384, P-521), Ed25519 and Curve25519, J-PAKE, PBKDF2
- True Random Number Generator (TRNG)
- ARM® TrustZone®
- Secure Boot (Root of Trust Secure Loader)
- Secure Debug Unlock
- DPA Countermeasures
- Secure Key Management with PUF
- Anti-Tamper
- Secure Attestation

• MCU Peripherals

- 12-bit 1 Msps or 16-bit 76.9 ksps SAR Analog to Digital Converter (ADC)
- 2 × Analog Comparator (ACMP)
- 2 × Digital to Analog Converter (VDAC)
- Low-Energy Sensor Interface (LESENSE)
- Up to 34 General Purpose I/O pins with output state retention and asynchronous interrupts
- 8 Channel DMA Controller
- 12 Channel Peripheral Reflex System (PRS)
- 4 × 16-bit Timer/Counter with 3 Compare/Capture/PWM channels
- 1 × 32-bit Timer/Counter with 3 Compare/Capture/PWM channels
- 32-bit Real Time Counter
- 24-bit Low Energy Timer for waveform generation
- 2 × Watchdog Timer
- 2× Enhanced Universal Synchronous/Asynchronous Receiver/Transmitter (EUSART)
- 1× Universal Synchronous/Asynchronous Receiver/Transmitter (UART/SPI/SmartCard (ISO 7816)/IrDA/I²S)
- 2 × I²C interface with SMBus support
- Integrated Low-Energy LCD Controller supporting up to 80 segments
- Die temperature sensor

2. Ordering Information

Table 2.1. ZGM230S Ordering Part Numbers

Ordering Code	Protocol Stack	TX Power	Freq Band	Antenna	Flash (kB)	RAM (kB)	Security	Temp Range	Carrier
ZGM230SA27HGN2	<ul style="list-style-type: none">• Z-Wave• Z-Wave Long Range	+14 dBm	Sub GHz	RF pin	512	64	Vault-Mid	-40 to 85 °C	Tray
ZGM230SB27HGN2	<ul style="list-style-type: none">• Z-Wave• Z-Wave Long Range	+14 dBm	Sub GHz	RF pin	512	64	Vault-High	-40 to 85 °C	Tray

ZGM230S modules are not pre-programmed with a bootloader.

ZGM230S devices may be referred to by their product family name (ZGM230S) or full ordering code throughout this document.

The **ZWAVE-PK0800A Z-Wave 800 Series Pro Kit** is available for ZGM230S evaluation and development, as well as **ZGM230-RB4205B** radio boards.

Simplicity Studio

One-click access to MCU and wireless tools, documentation, software, source code libraries & more. Available for Windows, Mac and Linux!



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