

# EZR32WG Wireless MCU

## Data Short



### EZR32WG Wireless MCU family with an ARM Cortex-M4 CPU and sub-GHz Radio

The EZR32WG 32-bit Wireless MCUs are the latest in Silicon Labs family of highly integrated, low-power wireless MCUs delivering a high-performance wireless solution, integrated into a small form factor package. This latest generation of wireless MCU products expands the overall WMCU portfolio by combining Silicon Labs' field-proven and widely adopted ARM Cortex-M4 based 32-bit MCU and RF transceivers. The EZR32WG family provides designers with the ultimate in flexibility with a family of pin-compatible parts that scale from 64 to 256 kB of flash, with or without USB interface, as well as various transceiver options and RF output power levels. The ultra-low power operating modes and fast wake-up times of the Silicon Labs energy friendly 32-bit MCUs, combined with the low standby, transmit and receive power consumption of the sub-GHz radio, result in a wireless solution optimized for battery powered applications.

#### MCU Features

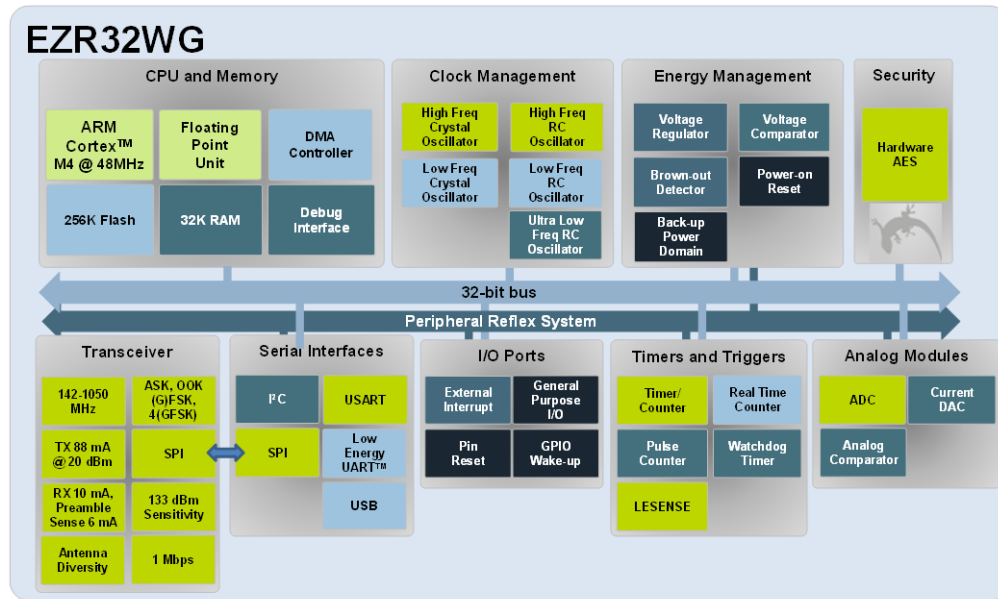
- ARM Cortex-M4 CPU platform
  - Up to 48 MHz
  - 256/128/64 kB flash with 32 kB RAM
  - Hardware AES with 128/256-bit keys
  - Floating Point Unit
- Flexible Energy Management System
  - 40 nA @ 3 V Shutoff Mode
  - 0.65  $\mu$ A @ 3 V Stop Mode
  - 225  $\mu$ A/MHz @ 3 V Run Mode (MCU)
- Timers/Counters
  - 4 Timer/Counter
  - Compare/Capture/PWM channels
  - Low Energy Timer
  - Real-Time Counter
  - 16/8-bit Pulse Counter
  - Watchdog Timer
- Communication interfaces
  - 2 $\times$  USART (UART/SPI)
  - 2 $\times$  UART
  - 2 $\times$  Low Energy UART
  - 2 $\times$  I2C Interface with SMBus support
  - Universal Serial Bus (USB) in WG330
- Ultra low power precision analog peripherals
  - 12-bit 1 Msamples/s ADC
  - On-chip temperature sensor
  - 12-bit 500 ksamples/s DAC
  - 2 $\times$  Analog Comparator
  - 3 $\times$  Operational Amplifier
- Low Energy Sensor Interface (LESENSE)
- Up to 41 General Purpose I/O pins

#### RF Features

- Frequency range: 142–1050 MHz
- Modulation: (G)FSK, 4(G)FSK, (G)MSK, OOK
- Receive sensitivity up to -133 dBm
- Up to +20 dBm max output power
- Low active power consumption
  - 10/13 mA RX
  - 18 mA TX at +10 dBm
  - 6 mA @ 1.2 kbps (Preamble Sense)
- Data rate = 100 bps to 1 Mbps
- Excellent selectivity performance
  - 69 dB adjacent channel
  - 79 dB blocking at 1 MHz
- Antenna diversity and T/R switch control
- Highly configurable packet handler
- TX and RX 64 byte FIFOs
- Automatic frequency control (AFC)
- Automatic gain control (AGC)
- IEEE 802.15.4g compliant

#### System Features

- Power-on Reset and Brown-Out Detector
- Debug Interface
- Temperature range -40 to 85  $^{\circ}$ C
- Single power supply 1.98 to 3.8 V
- 9x9 mm QFN64 package



### Wireless Starter Kit

The Silicon Labs Wireless Starter Kit is a low cost, fully featured hardware platform that allows designers to evaluate the performance and features of Silicon Labs wireless MCU products. The kit provides all hardware and software tools needed to develop and debug applications using the Silicon Labs low-power wireless MCUs. Hardware tools include an on-board debugger, advanced energy monitoring and integrated packet trace. The kit is fully supported by Silicon Labs' software libraries and the kit board support package.

### Simplicity Studio and Silicon Labs Connect Stack

The WMCUs are supported by Simplicity Studio, a comprehensive software suite and IDE that provides instant, one-click access to all your tools, software, news, documents and resources and Silicon Labs Connect, a complete sub-GHz networking stack for building simple point-to-point and star networks. By providing developers a complete view of the radio configuration, setup and sample applications in a graphical interface, Silicon Labs Connect helps to significantly accelerate development on the EZR32 platform.

### EZR32WG Family Selector Guide

| Orderable Part Number     | Radio      | Flash (kB) | RAM (kB) | USB | Power Amplifier   | Max Sensitivity |
|---------------------------|------------|------------|----------|-----|-------------------|-----------------|
| <b>EZR32WG230FxxxR55G</b> | EZRadio    | 64-256     | 32 kB    | No  | +13 dBm           | -116 dBm        |
| <b>EZR32WG230FxxxR60G</b> | EZRadioPro | 64-256     | 32 kB    | No  | +13 dBm           | -126 dBm        |
| <b>EZR32WG230FxxxR61G</b> | EZRadioPro | 64-256     | 32 kB    | No  | +16 dBm           | -126 dBm        |
| <b>EZR32WG230FxxxR63G</b> | EZRadioPro | 64-256     | 32 kB    | No  | +20 dBm           | -126 dBm        |
| <b>EZR32WG230FxxxR67G</b> | EZRadioPro | 64-256     | 32 kB    | No  | +13 dBm           | -133 dBm        |
| <b>EZR32WG230FxxxR68G</b> | EZRadioPro | 64-256     | 32 kB    | No  | +20 dBm           | -133 dBm        |
| <b>EZR32WG230FxxxR69G</b> | EZRadioPro | 64-256     | 32 kB    | No  | +13 dBm & +20 dBm | -133 dBm        |
| <b>EZR32WG330FxxxR55G</b> | EZRadio    | 64-256     | 32 kB    | Yes | +13 dBm           | -116 dBm        |
| <b>EZR32WG330FxxxR60G</b> | EZRadioPro | 64-256     | 32 kB    | Yes | +13 dBm           | -126 dBm        |
| <b>EZR32WG330FxxxR61G</b> | EZRadioPro | 64-256     | 32 kB    | Yes | +16 dBm           | -126 dBm        |
| <b>EZR32WG330FxxxR63G</b> | EZRadioPro | 64-256     | 32 kB    | Yes | +20 dBm           | -126 dBm        |
| <b>EZR32WG330FxxxR67G</b> | EZRadioPro | 64-256     | 32 kB    | Yes | +13 dBm           | -133 dBm        |
| <b>EZR32WG330FxxxR68G</b> | EZRadioPro | 64-256     | 32 kB    | Yes | +20 dBm           | -133 dBm        |
| <b>EZR32WG330FxxxR69G</b> | EZRadioPro | 64-256     | 32 kB    | Yes | +13 dBm & +20 dBm | -133 dBm        |