

“Designed to make machines talk”

Integrate ZigBee™ / IEEE 802.15.4 Wireless networking into products and systems

Features

- True System on Chip solution (SoC)
- Industry leading CC2420 RF Transceiver
- FCC Certified for unlicensed operation
- Pin header module for board to board mounting
- Wide supply voltage range 4-30VDC
- Battery powered, low duty cycle gives exceptional battery life
- 3 antenna type options
- Built in position location engine
- Can wake up on event driven basis or regular reporting intervals
- Internal temperature and battery monitor



Specification

Processor	Industry standard 8051MCU , 32 MHz, 8 bit Processor
Memory	8kB RAM, 128kB Flash
Communications	2.4 GHz IEEE802.15.4 RF transceiver
External Power Supply	4 – 30VDC (on board LDO regulator)
Auxiliary Power Supply	3.3VDC output with up to 50mA available for off-module use
I/O Interface	18 Configurable general Purpose I/O Lines on pin header
Analogue Inputs	Up to 8 8-14 bits ADC
Analogue Outputs	Up to 3 PWM configurable
Serial Interface	2 UART interfaces with DMA transfer
Radio Data Rate	256 k/Bits
Receiver sensitivity	-94 dBm
RF Output Power	Power programming (-25dBm – 0dBm)
Addressing	Unique 64-bit MAC address chip
Size	31mm x 26.5mm

DETAILED SPECIFICATION

MODULE FEATURES

- Small form factor, pin header module 35mm x 21.6mm for board-to-board mounting
- 3 antenna type options: Integrated chip antenna, SMA (50Ω) or RP-SMA (50Ω). Multiple SMA and RP-SMA configurations – see Part Numbering.
- Location engine option
- CC2430/31 microcontroller with non-intrusive debug interface
- 128k Flash, 8k SRAM (4k with data retention in all power modes)
- Low power modes: Four flexible power modes for reduced power consumption
 - Only 0.9μA current consumption in power-down mode where external interrupts or the RTC can wake up the system. (Self wake-up)
 - Less than 0.6μA current consumption in standby mode, where external interrupts can wake up the system
- Very fast transition times from low-power modes to active mode enables ultra low average power consumption in low duty-cycle systems
- 32MHz main oscillator
- 32.768kHz crystal oscillator real time clock (RTC)
- Battery power input / 3.3V DC input:
 - Wide supply voltage range (2.0 – 3.6V)
- Unregulated DC supply input (on-board LDO regulator) for industrial applications:
 - Wide supply voltage range (4 – 30V)
 - Battery input becomes 3.3V output with up to 50mA available for off-module use
- 2 UART interfaces with DMA transfer. Up to 230400 baud, and RTS/CTS handshaking
- SPI interface
- 18 configurable GPIO lines available on the pin header:
 - 2 capable of driving 20mA in output mode, remainder at 4mA drive strength
 - Configurable pull-up / pull-down on inputs.
 - Interrupt generation
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- Analogue inputs:
 - 8 analogue inputs (single ended or differential)
 - 8, 10,12 or 13 bit resolution ADC
 - In-built temperature sensor
 - In-built battery monitor (supply monitor)
 - DMA transfer of results
- Three PWM configurable outputs
- Timers:
 - MAC timer
 - 16bit timer
 - Two 8 bit timers
 - Sleep timer
 - Watchdog timer
- Can act as an End Device, Router or Coordinator
- 64-bit MAC address chip
- 128 bit AES security coprocessor
- CC2431 provides location engine support, with location accuracy to 3 metres or less dependent on fixed node configuration and environment

RADIO FEATURES

- 2.4GHz ISM Band (2400 – 2483.5 MHz)
- 16 channels (IEEE 802.15.4 channels 11 – 26)
- Radio data rate - 250kbit/s
- Receive Signal Strength Indication (RSSI) available as an 8bit value (100dB dynamic range)
- Receiver sensitivity of -94dBm (1% PER)
- RF output power programming (-25dBm – 0dBm) which allowing current consumption to be reduced
- On-chip 1.8V regulator for RF section

ORDERING DETAILS

Module Coding

ZB100-8S-x-y-z

(x) Transceiver

0 = CC2430 Transceiver
1 = CC2431 Transceiver c/w location engine

E.g. ZB110-8S-0-A
CC2430 with Chip Antenna

E.g. ZB100-8S-1-B
CC2431 with Vertical SMA Jack

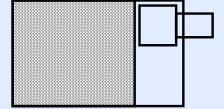
E.g. ZB100-8S-0-J-R
CC2430 R/A RP-SMA Bulkhead
Jack - rotated orientation

(y) Antenna Style

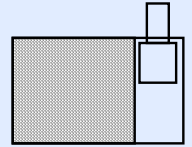
A = Chip Antenna
B = Vertical SMA Jack
C = Vertical SMA Bulkhead Jack
D = Vertical RP-SMA Jack
E = Vertical RP-SMA Bulkhead Jack
F = R/A SMA Jack
G = R/A SMA Bulkhead Jack
H = R/A RP-SMA Jack
J = R/A RP-SMA Bulkhead Jack

(z) R/A SMA Orientation

S = Straight



R = Rotated



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ISO9001: 2000 QA Certified