

User Manual

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Product Description

The Zigbee RF module Z100A offered from NETVOX is low power, 2.4GHz ISM band transceiver, based on the TI CC2530 single chip ZigBee Pro / IEEE 802.15.4 solution.

The Z100A comes in two different versions. The on-board chip antenna, and the on-board metal antenna.



Z100A(Chip Ant)



Z100A(Metal Ant)

Figure 1

The Z100A is designed to be SMD-mounted onto a host PCB. SMD-mounting provides the best RF performance at the lowest cost. Additionally the Z100A is designed to occupy minimal board space on the host PCB, which already includes plentiful interfacing ports and power management circuits. So it can be easily integrated into other device without the need for RF experience and expertise.

The Z100A operates in the 2.4-2.4835 GHz unlicensed worldwide ISM band .

Versions

The Z100A module supports ultra-low-power applications, in combination with long transmission range.

The Z100AC version features an on-module chip antenna. It is ideally suited for all multi purpose wireless mesh solutions.

The Z100AI version where the RF signal connects to an external antenna, ideally suited for all multi purpose wireless mesh solutions that require specific, optimized antenna performance, such as increased directivity and/or extended ranges.

Key Features

- High performance and low power 8051 microcontroller core.
- 2.4 GHz IEEE 802.15.4 compliant RF transceiver
- Excellent receiver sensitivity and robustness to interferers
- Only 0.8µA current consumption in power-down mode, where external interrupts or the RTC can wake up the system
- 0.5 µA current consumption in stand-by mode, where external interrupts can wake up the system.
- CSMA/CA hardware support.
- Wide supply voltage range (2.0V – 3.6V DC)
- Digital RSSI / LQI support and Powerful DMA functionality
- Battery monitor and temperature sensor.
- 7-12 bits ADC with up to eight inputs
- AES security coprocessor
- Two programmable USARTs with support for several serial protocols.
- One IEEE 802.15.4 MAC Timer, one general 16-bit timer and two 8-bit timers
- Powerful and flexible development tools available

Firmware Debugging/Burning

Debugging and Burning

First connect the burning tool's ribbon cable to the RF Module. Figure A and B show the connection point.



Figure A: burning tool

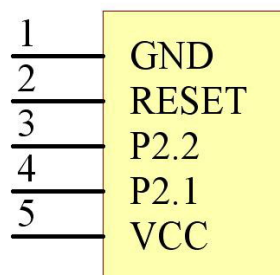


Figure B: RF Module

When the connection is completed, open the burning software -SmartRF Flash Programmer, provided by Texas Instruments.

*You may download **SmartRF Flash Programmer** from the Texas Instruments website and its user manual.*

When setup is correct, you should see the program displaying the chip information as shown in Figure C. For how to operate the program, please refer to its user manual for details.

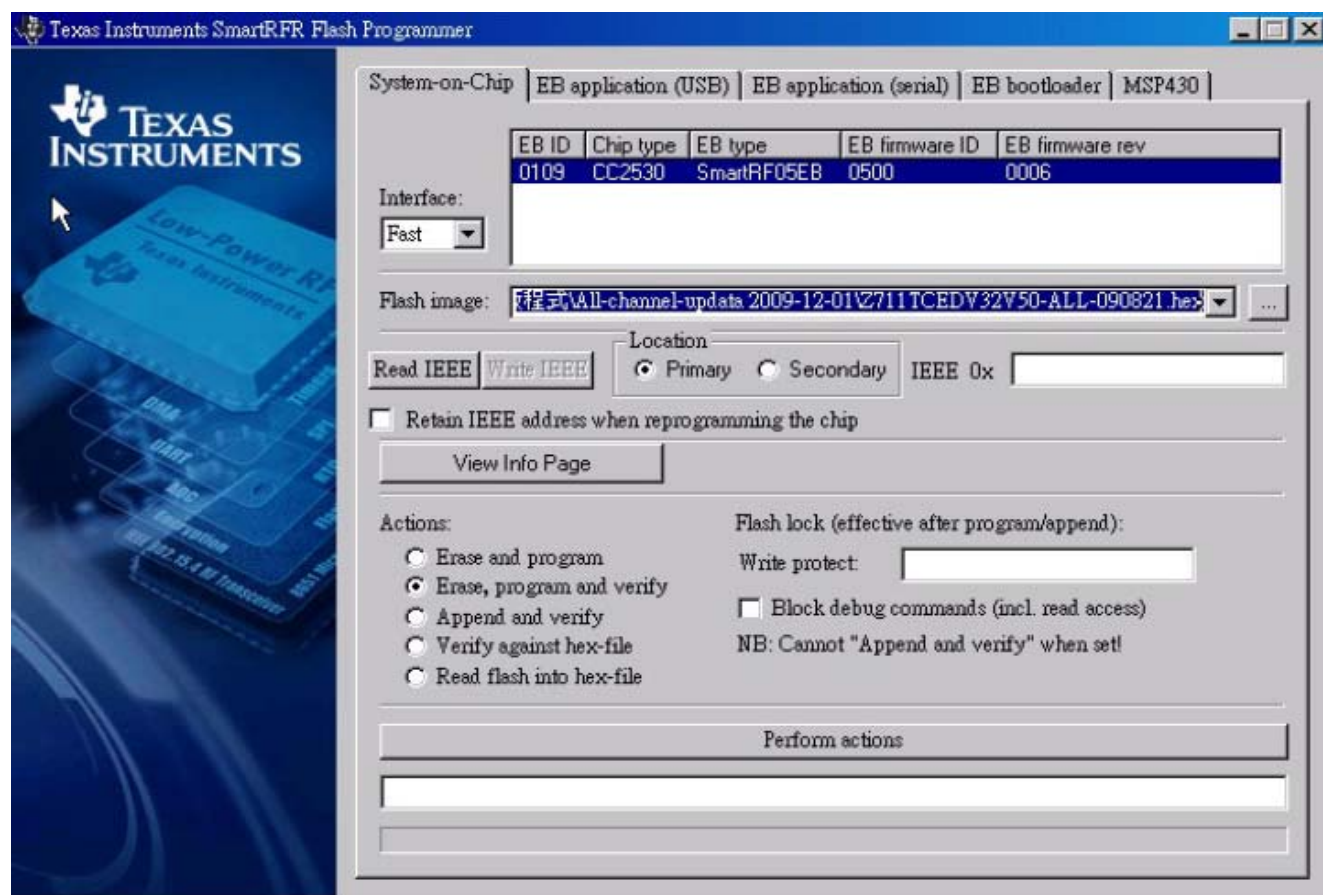


Figure C: *SmartRF Flash Programmer*

ZigbeePro™ - RF Module

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user manual of the end product. The user manual which is provided by OEM integrators for end users must include the following information in a prominent location.

“To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.”

Label for end product must include “Contains FCC ID:NRH-ZB-Z100A” or “A RF transmitter inside, FCC ID: ID:NRH-ZB-Z100A”.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC RF Radiation Exposure Statement:

- This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

The Federal Communication Commission Radio Frequency Interference Statement includes the following paragraph:

The equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no grantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user should not modify or change this equipment without written approval from NETVOX TECHNOLOGY CO., LTD..Modification could void authority to use this equipment.