User Manual

Version 1.2

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Product Description

The Zigbee RF module Z110PA offered by NETVOX is low power, 2.4GHz ISM band transceiver based on the CC2530 single chip ZigBee Pro™ / IEEE 802.15.4 solution.

The Z110PA comes in three different versions. On-board chip antenna, metal antenna and i-PEX version.

Z110PA(Metal Ant)

Z110PA(I-pex Ant)

Z110PA(Chip Ant)

Figure 1

The Z110PA is designed to be SMD-mounted onto a host PCB. SMD-mounting provides the best RF performance at the lowest cost. Additionally the Z110PA 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 Z110PA operates in the 2.4-2.4835 GHz unlicensed worldwide ISM band.

Applications

- Safety and security
- Healthcare applications
- Asset management
- Home/Building Automation
- AMR – Automatic Meter Reading
- Industrial Controlling and Automation
- Wireless Alarms and Security
- Wireless Telemetric Application
- Wireless POS/PDA
- Wireless RS-232/485 Networking

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 1.0μA current consumption in power-down mode, where external interrupts or the RTC can wake up the system
- 0.7 μA current consumption in stand-by mode, where external interrupts can wake up the system.
- Up to 18dBm power output
- Wide supply voltage range (2.0V – 3.6V DC)
- CSMA/CA hardware support.
- Integrated IEEE 802.15.4 PHY and lower MAC with DMA
- Digital RSSI / LQI support and Powerful DMA functionality
- Battery monitor and temperature sensor.
- AES security coprocessor
- 7-12 bits ADC with up to eight inputs
- 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

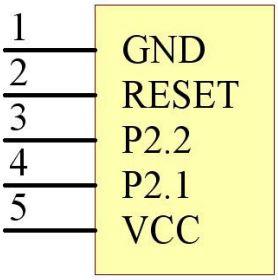

Figure B: RF Module

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.

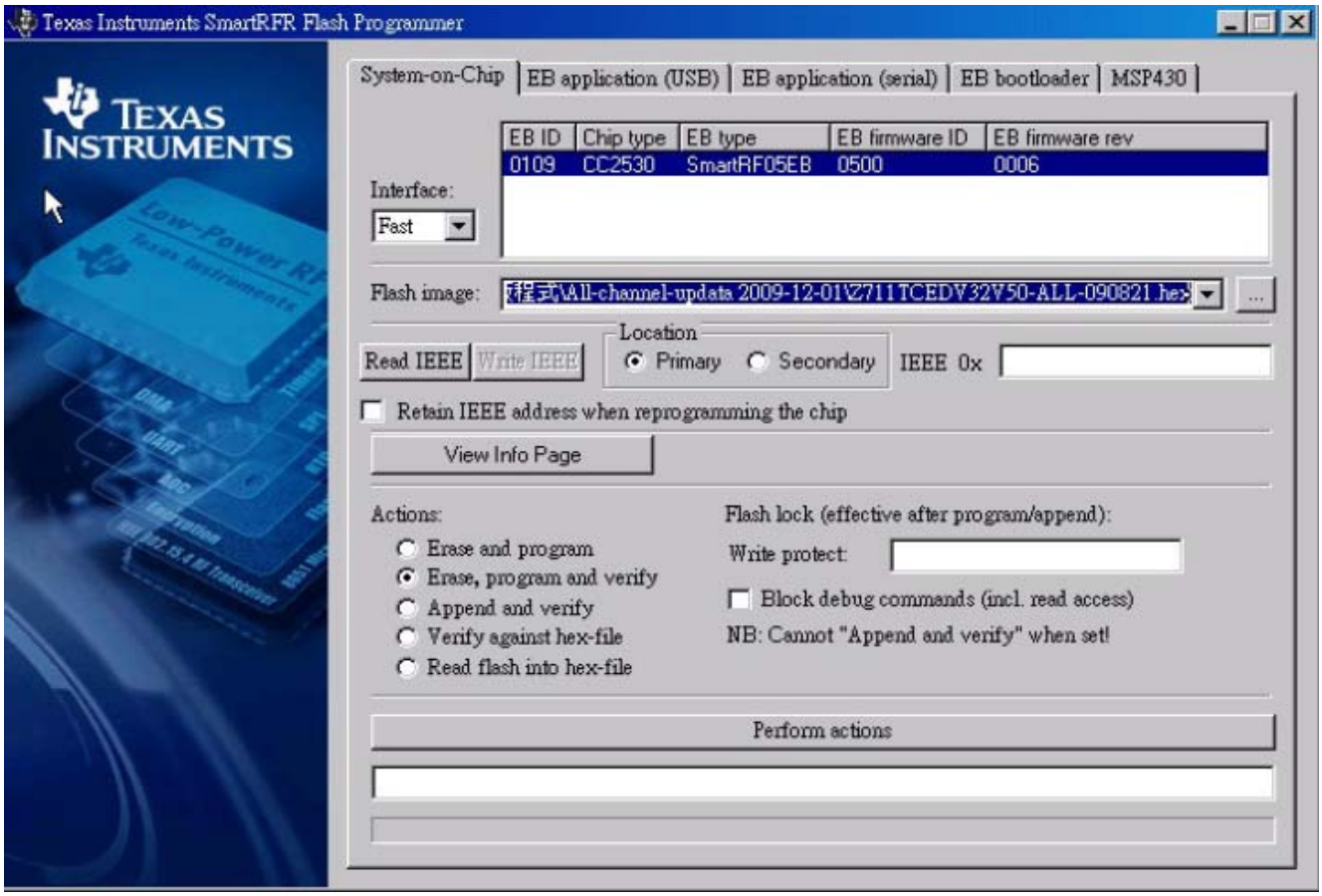

Figure C: ***SmartRF Flash Programmer***

The OEM integrator has to 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 user 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-Z110PA”or “A RF transmitter inside ,FCC ID: NRH-ZB-Z110PA”

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.