

User Manual

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Product Description

The Zigbee RF module Z100E offered by NETVOX is low power, 2.4GHz ISM band transceiver based on the Ember250 single chip ZigBee Pro™ / IEEE 802.15.4 solution.

The Z100E comes in two different versions. The on-board chip antenna and on-board metal antenna.

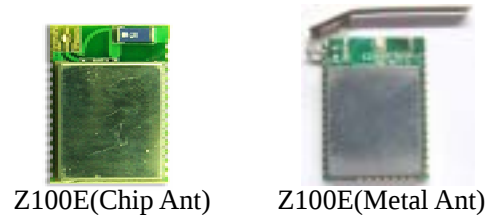


Figure 1

The Z100E is designed to be SMD-mounted onto a host PCB. SMD-mounting provides the best RF performance at the lowest cost. Additionally the Z100E 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 Z100E 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

Mounting Consideration

The Z100E module was designed to mount onto the customer's base board. On board soldering is required when mounting it to the board.

The Ember250 development kit can be used to write and debug firmware as described in the next section. Debugging pins are also given.

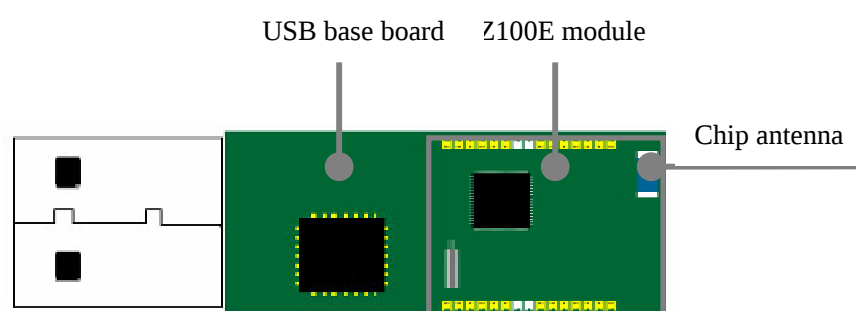


Figure 2. The Z100E module mounting to an USB interface board

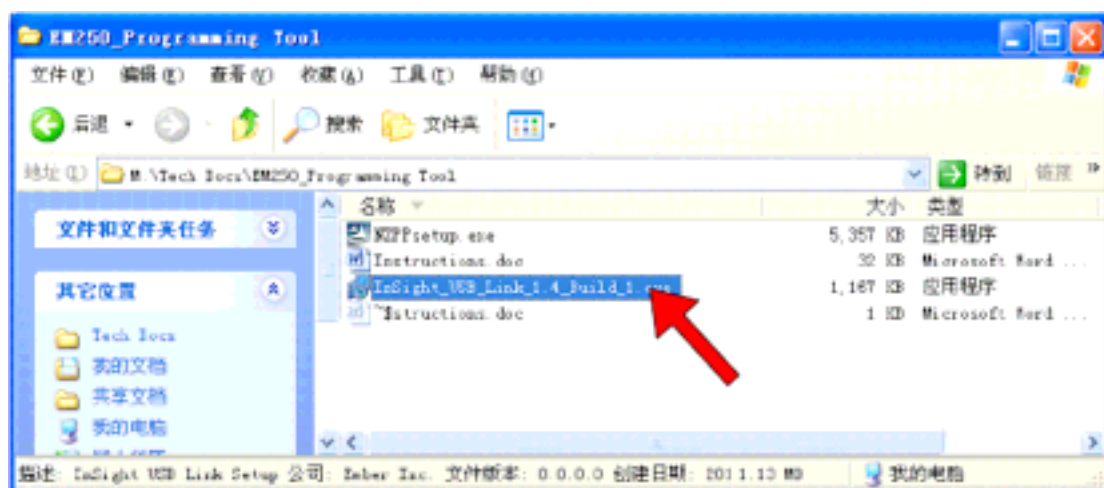
Debugging program installation

Steps:

1. Install EMBER USB_Link driver
2. Install programming software

I. Installing the UBS driver onto your PC for burning unencrypted EM250 firmware.

On the PC, select and double click on the executable InSight USB link_1.4 to install then follow the prompt to complete the installation.



Now wire the cable on the Ember USB_Link to the RF module. The pin labels are is shown in the figure. (refer to the PCB layout dimension, Figure 5)

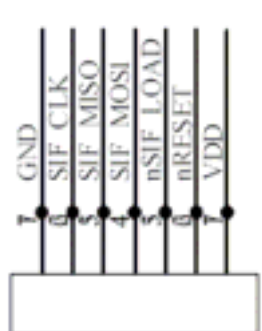
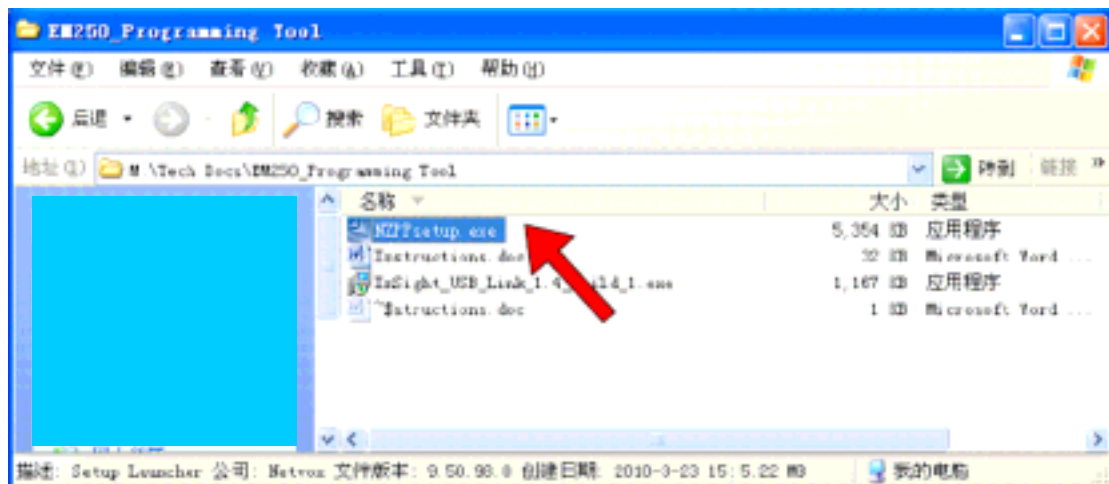


Figure: RF module pin labels

- * When EMBER USB_Link is inserted into the USB port on the PC, the driver will automatically installed and the USB device port can be found.
- * EMBER USB_Link does not serve as power supply to the RF module under test, please make sure the power is given before burning the firmware.

II. Install programming software

On the PC, select and double click on the executable NZpp_Setup icon to install then follow the prompt to complete the installation.



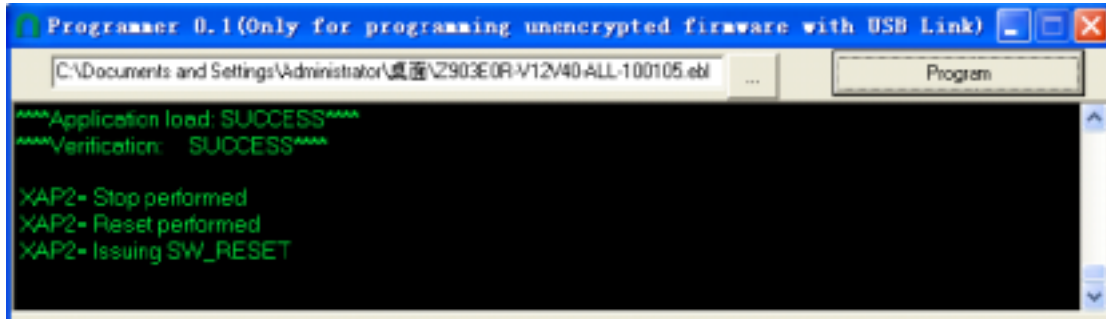
III. Burning a firmware

When done. A short cut is then created for you on your desktop as shown in the figure bellow:



Double click on the icon to run the programmer's software

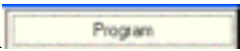
A similar software screen will appear shown bellow:



Before burning your firmware into the EMBER250, please make sure that all the USB stretching cables are attached to the RF module according to the pin assignment mentioned earlier.

Now select the firmware file that you wish to write, the file with ebl extension. Click

on the  and go to the file.

To write the firmware, simply click on .

When write is completed, a verification report shows “SUCCESS”.

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-Z100E”or “A RF transmitter inside, FCC ID: ID:NRH-ZB-Z100E”.

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:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. 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.