

# **Sensingtek Product Set-up Menu**

V1.1

2008.08.08

# Product Setup

**software:**

**ITRI NuSens RF24 Engineering tool**

**Tool or Interface:**

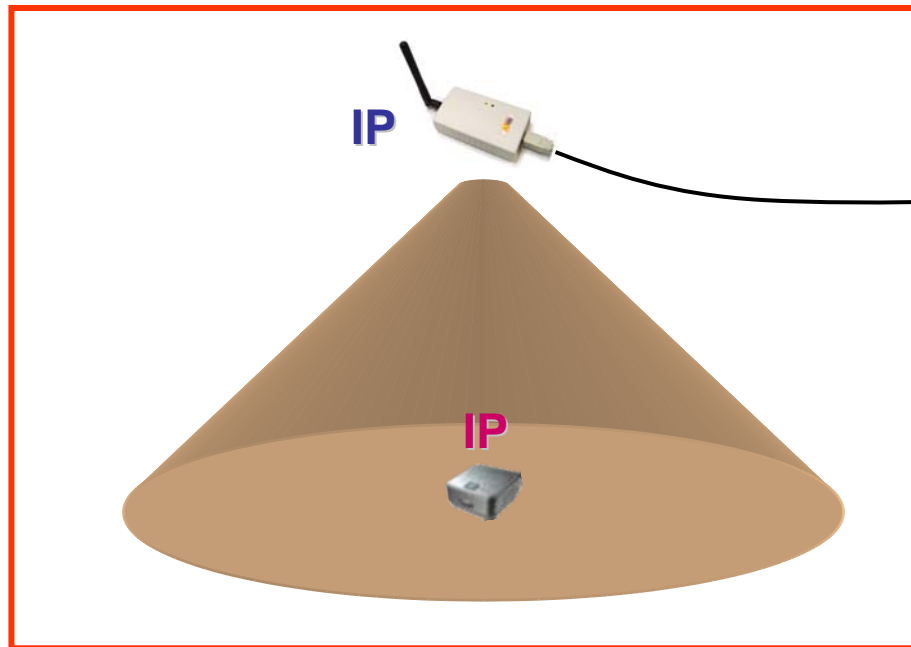
**(1)Coordinator USB: Through USB**

**(2)Coordinator Ethernet: Through Ethernet**

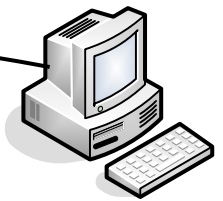
**(3)DI 、 AI 、 T&H 、 K-TYPE: Through RF With Coordinator**

**PAN ID**

**RF Channel**



**Modbus TCP  
UDP  
UART**



**Sample rate:**

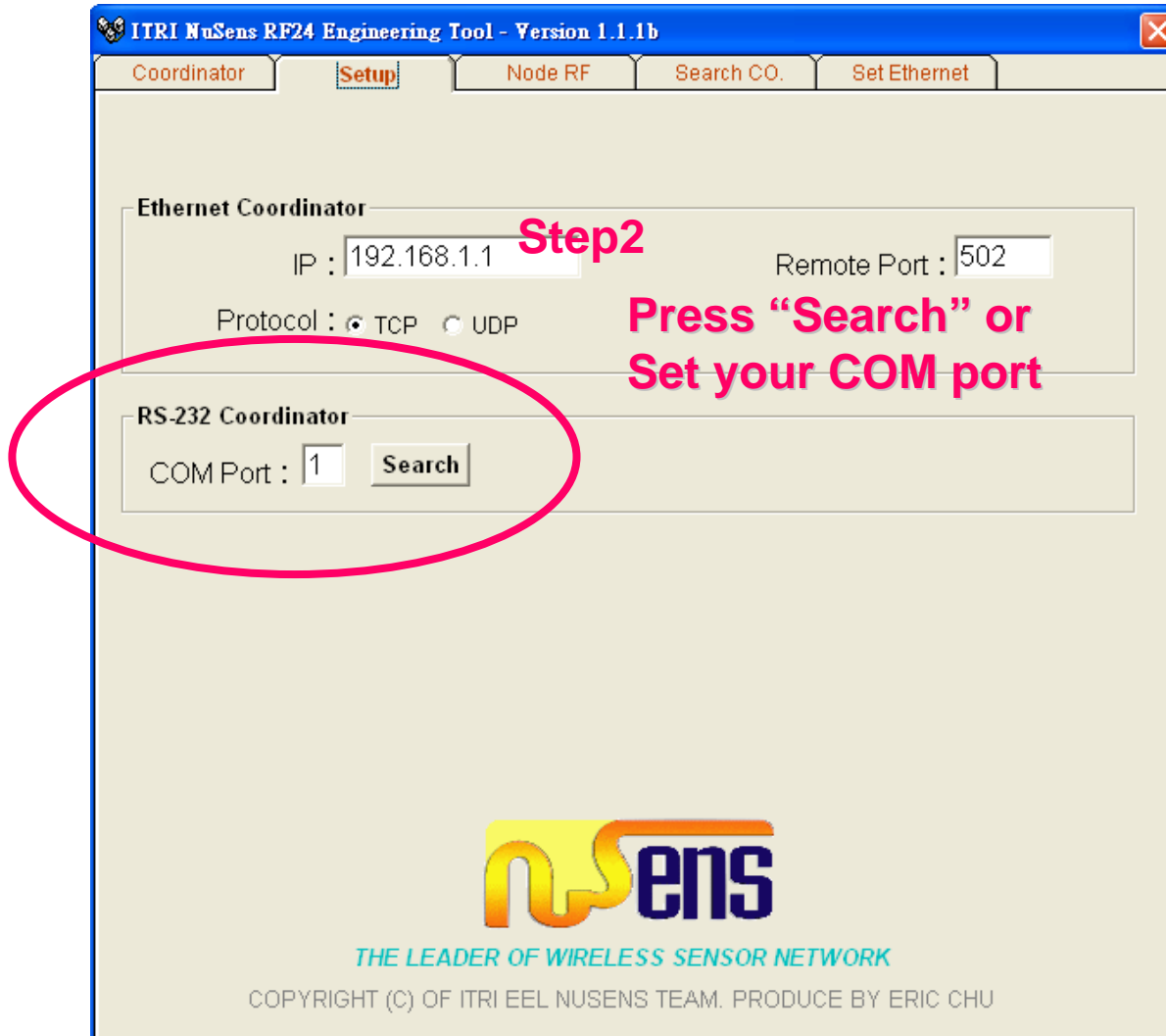
**Node Setup Frequency**

**Need to Follow**

**Coordinator**

# Product Setup -Coordinator USB(1)

Step1 Open ITRI NuSens RF24 Engineering tool



ITRI NuSens RF24 Engineering Tool - Version 1.1.1b

Coordinator Setup Node RF Search CO. Set Ethernet

**Ethernet Coordinator**

IP : 192.168.1.1 Remote Port : 502

Protocol : ☒ TCP ☐ UDP

**RS-232 Coordinator**

COM Port : 1 Search

**Step2**

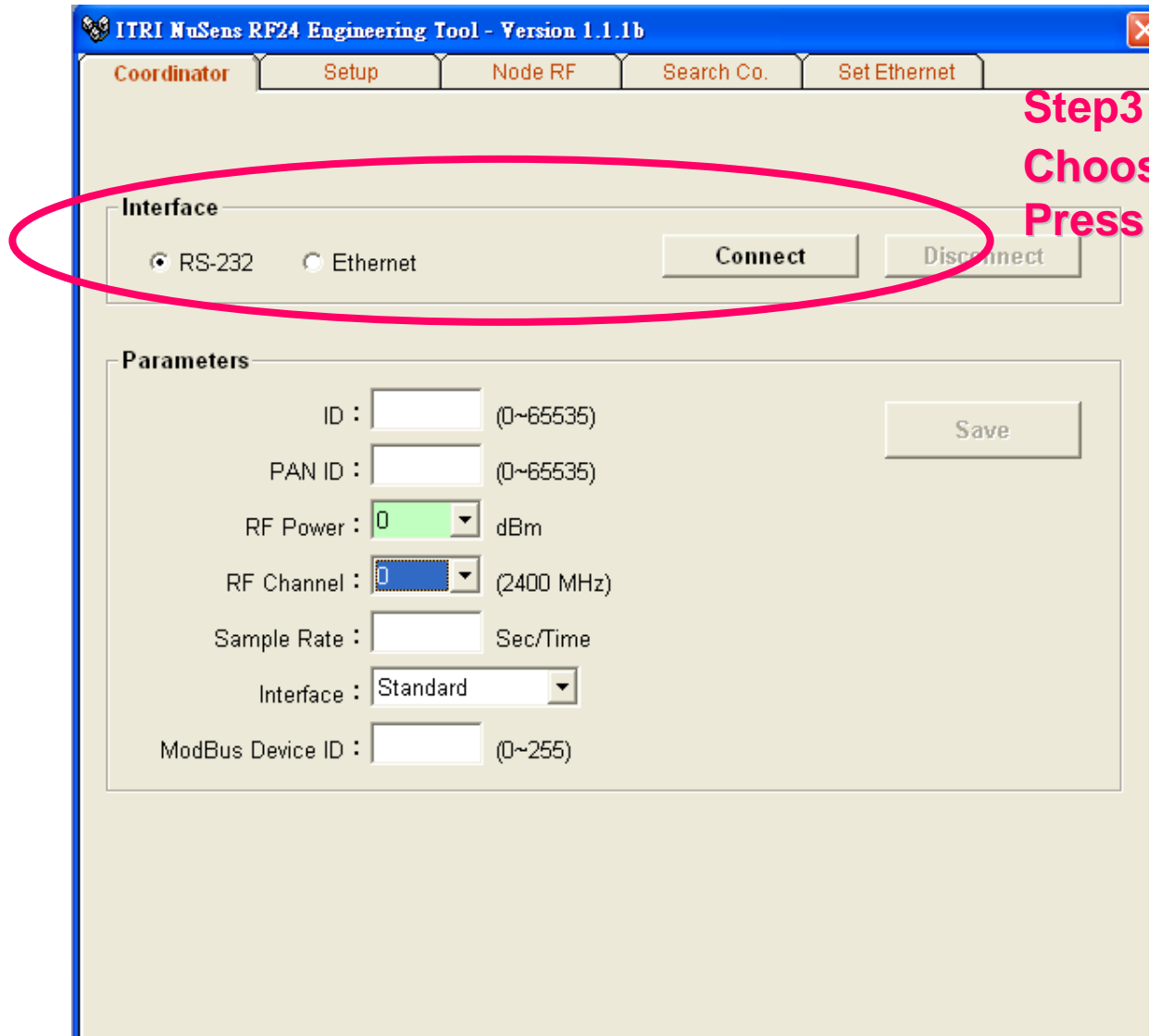
Press "Search" or Set your COM port

**nsens**

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# Product Setup -Coordinator USB(2)



ITRI NuSens RF24 Engineering Tool - Version 1.1.1b

Coordinator Setup Node RF Search Co. Set Ethernet

**Interface**

☒ RS-232 ☐ Ethernet

Connect Disconnect

**Parameters**

ID :  (0~65535)

PAN ID :  (0~65535)

RF Power :  dBm

RF Channel :  (2400 MHz)

Sample Rate :  Sec/Time

Interface :  Standard

ModBus Device ID :  (0~255)

Save

**Step3**  
**Choose "RS-232"**  
**Press "Connect"**

# Product Setup -Coordinator USB(3)

ITRI NuSens RF24 Engineering Tool - Version 1.1.1b

**Coordinator**

**Interface**

☒ RS-232 ☐ Ethernet

**Parameters**

ID : 10000 (0~65535)

PAN ID : 100 (0~65535)

RF Power : 0 dBm

RF Channel : 50 (2450 MHz)

Sample Rate : 3 Sec/Time

Interface : Standard

ModBus Device ID : 255 (0~255)

Connect Disconnect

Save

Step4

Step6

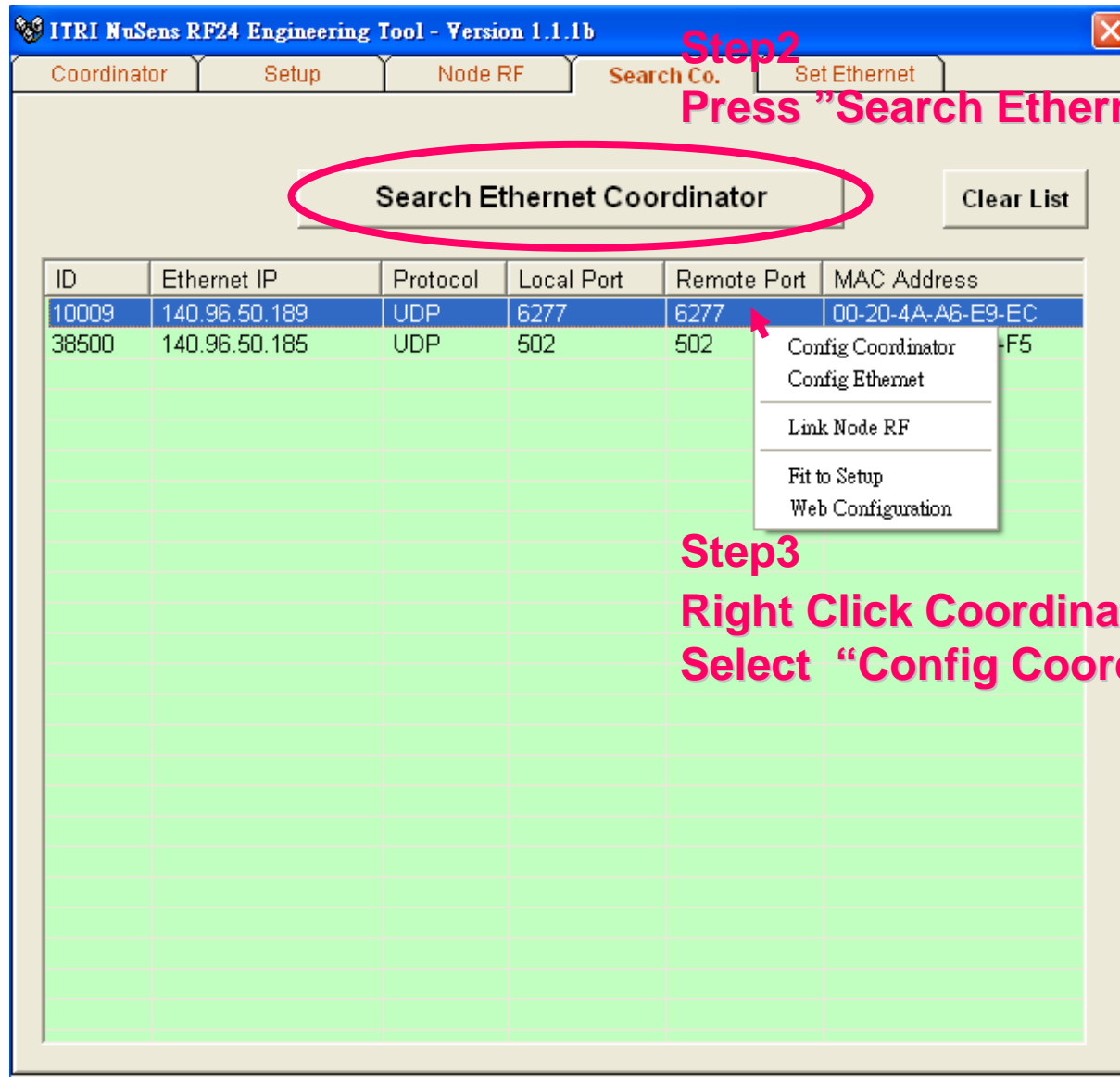
Press "Disconnect"

Step5

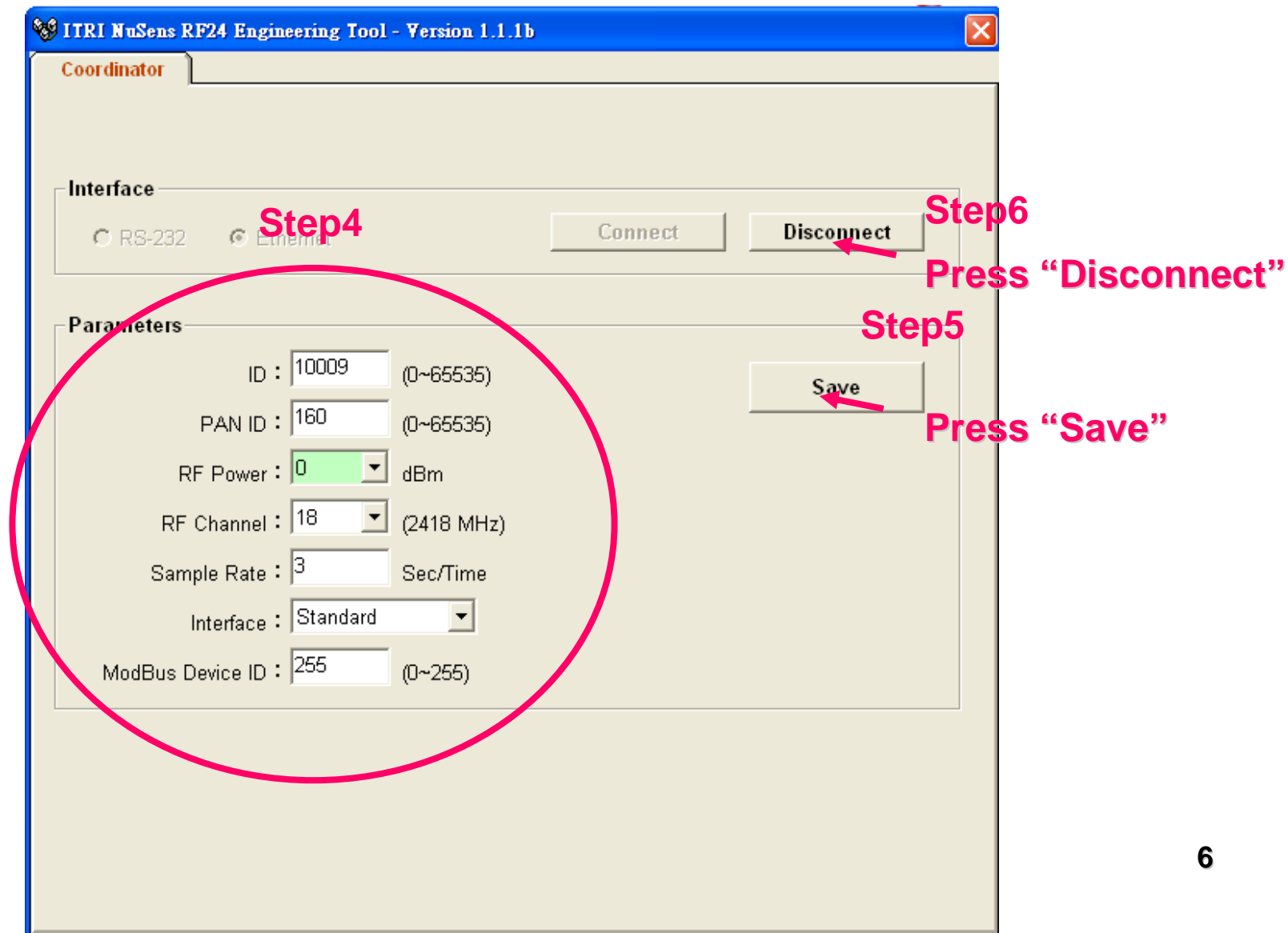
Press "Save"

# Product Setup -Coordinator Ethernet(1)

**Step1 Open ITRI NuSens RF24 Engineering tool**



# Product Setup -Coordinator Ethernet(2)



ITRI NuSens RF24 Engineering Tool - Version 1.1.1b

**Coordinator**

**Interface**

☐ RS-232 ☒ Ethernet **Step 4**

**Parameters**

ID : 10009 (0~65535)

PAN ID : 160 (0~65535)

RF Power : 0 dBm

RF Channel : 18 (2418 MHz)

Sample Rate : 3 Sec/Time

Interface : Standard

ModBus Device ID : 255 (0~255)

**Connect** **Disconnect** **Step 6 Press "Disconnect"**

**Save** **Step 5 Press "Save"**





# Product Setup -Coordinator Ethernet

## Network Parameter(2)

ITRI NuSens RF24 Engineering Tool - Version 1.1.1b

Coordinator Setup Node RF Search Co. **Set Ethernet**

**Step4 Set network parameter**

Target IP: 140.96.50.189 Read Save

**Network**

☒ DHCP ☐ Static IP

IP Address: 0.0.0.0

Subnet Mask: 0.0.0.0

Gateway: 0.0.0.0

**Connection**

Protocol: TCP

Local Port: 502 Remote Port: 502 Remote Host: 140.96.50.255

**Step5**  
**Press "Save"**

# Product Setup -DI 、 AI 、 T&H 、 K-TYPE(1)

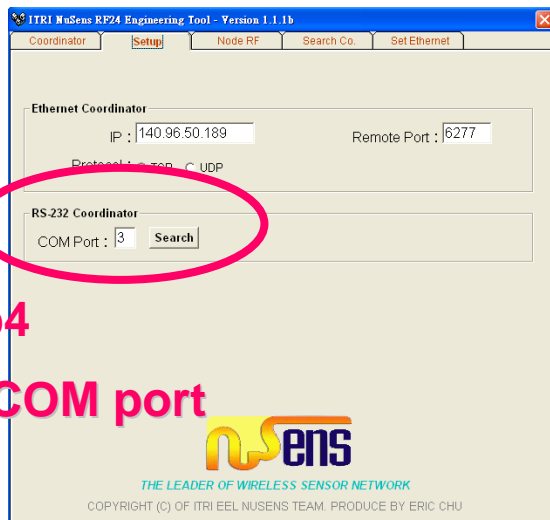
- **Step1**  
**Link Coordinator on Computer**
- **Step2**
  1. **T&H** : Hold The Function Key to Switch on The Power , till Green LED “ON” . And Press The Function Key Again Until The Blue LED Light and Green LED Off , Get Into The Setup Mode.
  2. **DI 、 AI 、 K-TYPE** : Plug DC Power then Red and Green LED Will Flash In The Same time Within 5 Sec , And Hold The Function Key to Switch on The Power , till Green LED “ON” . And Press The Function Key Again Until The Blue LED Light and Green LED Off , Get Into The Setup Mode.

# Product Setup -DI、AI、T&H、K-TYPE(2)



## Step3 Open ITRI NuSens RF24 Engineering tool

### If use Coordinator USB

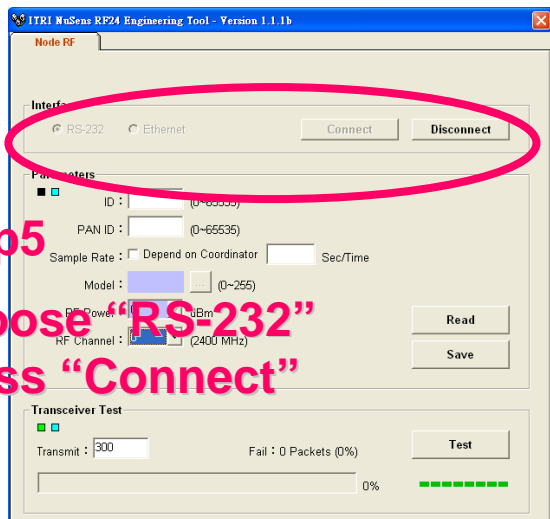


## Step4

## Set COM port



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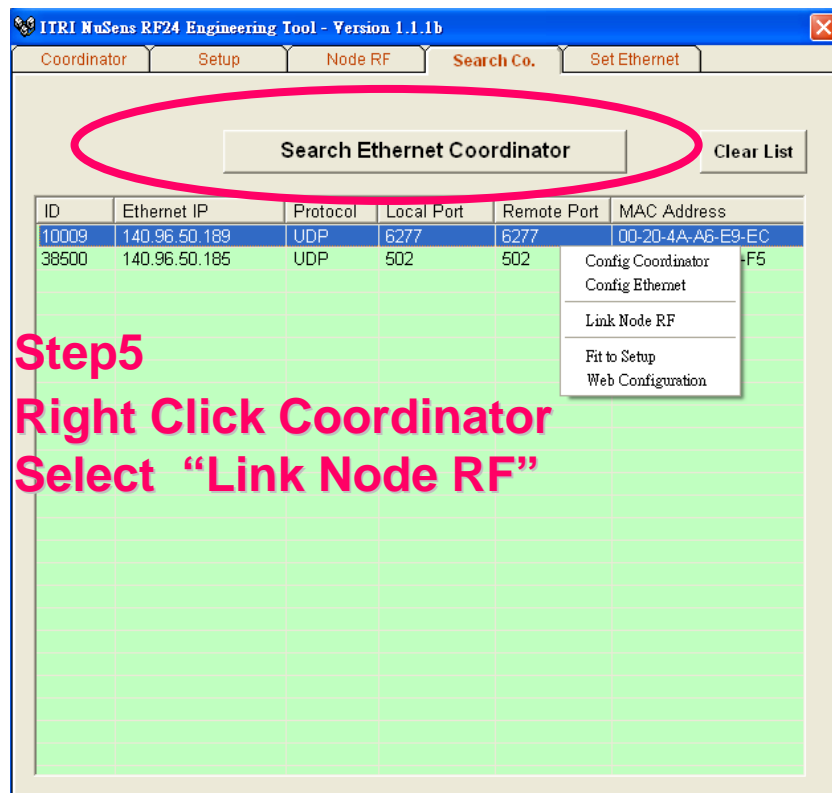
## Step5

## Choose "RS-232" Press "Connect"

### If use Coordinator Ethernet

## Step4

## Press "Search Ethernet Coordinator"



## Step5

## Right Click Coordinator Select "Link Node RF"

OR

# Product Setup -DI 、 AI 、 T&H 、 K-TYPE(3)

ITRI NuSens RF24 Engineering Tool - Version 1.1.1b

**Node RF**

**Interface**

☒ RS-232 ☐ Ethernet

**Parameters**

☒ ☐

ID :  (0~65535)

PAN ID :  (0~65535)

Sample Rate : ☐ Depend on Coordinator  Sec/Time

Model :  (0~255)

RF Power :  dBm

RF Channel :  (2400 MHz)

**Transceiver Test**

☒ ☐

Transmit :  300

Fail : 0 Packets (0%)

0%

Step6  
Press "Read"

# Product Setup -DI 、 AI 、 T&H 、 K-TYPE(5)

ITRI NuSens RF24 Engineering Tool - Version 1.1.1b

**Node RF**

**Interface**

☒ RS-232 ☐ Ethernet

**Parameters**

☒ ☐

ID :  (0~65535)

PAN ID :  (0~65535)

Sample Rate : ☒ Depend on Coordinator

Model :   (0~255)

RF Power :  dBm

RF Channel :  (2401 MHz)

**Transceiver Test**

☒ ☐

Transmit :  Fail : 0 Packets (0%)

Step7

Step9

Press "Disconnect"

Step8

Press "Save"

# Product Setup –AI Detect Range

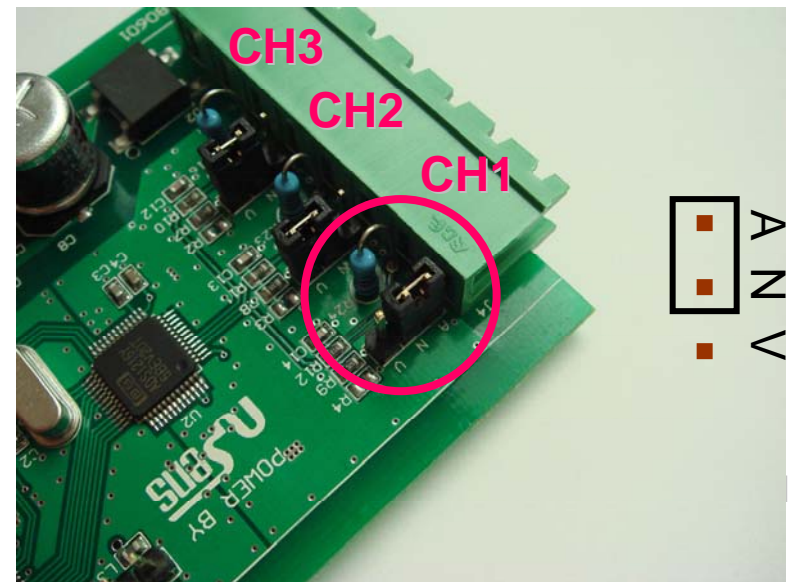
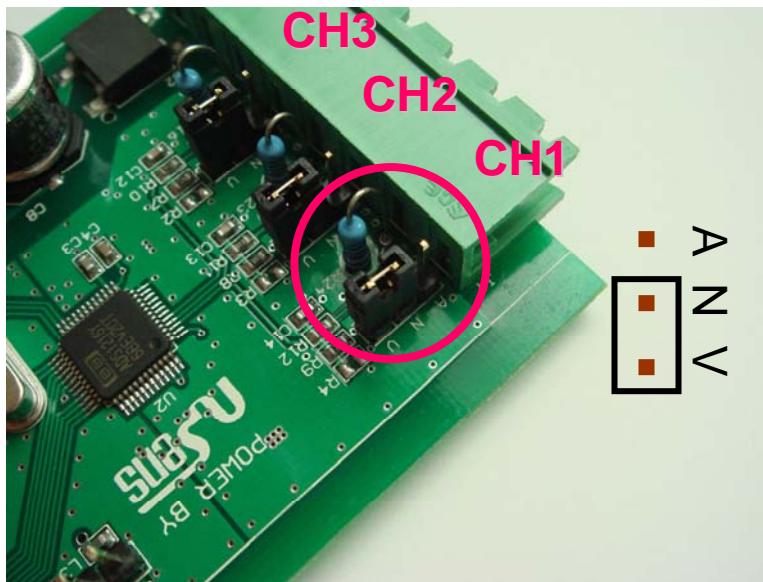
## And Jumper Setup

Step1 Open The Case

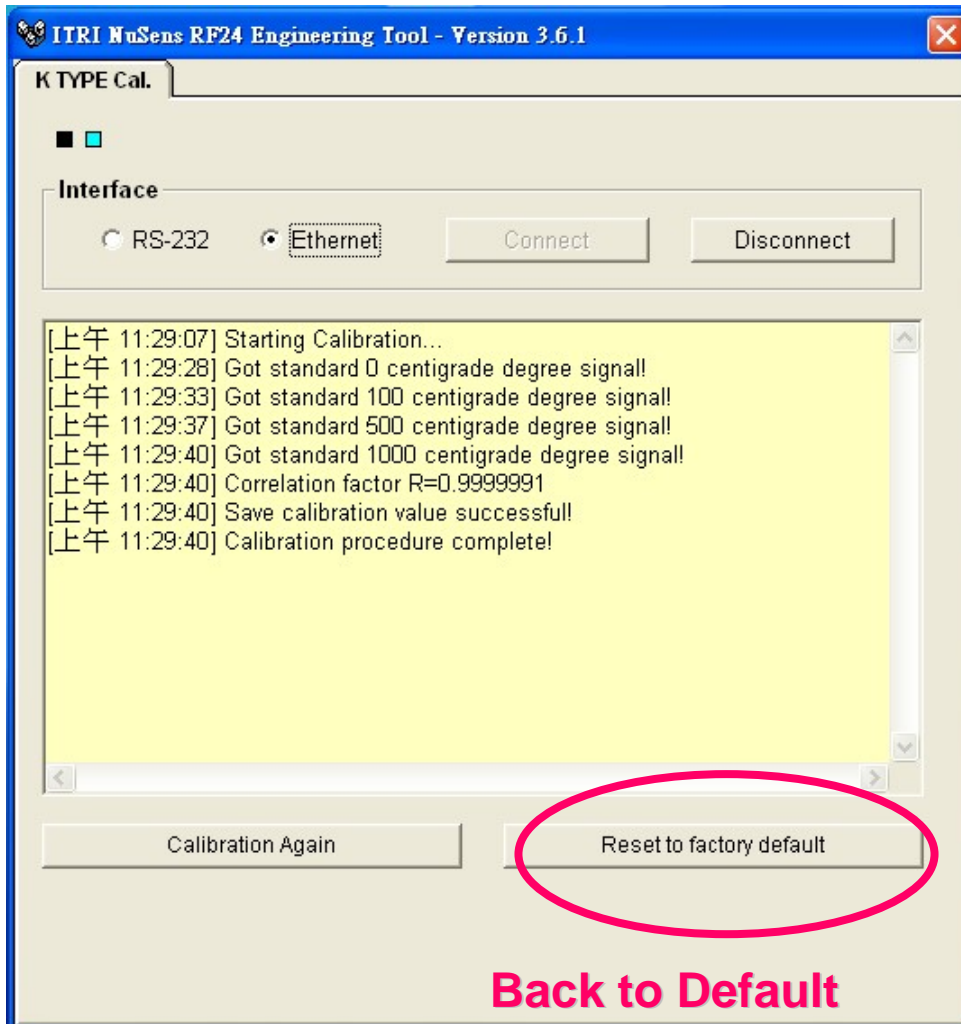


Step2 0~1V,0~5V,0~10V Jumper Setup

0-20mA,4-20mA Jumper Setup



# Product Setup -K TYPE Calibration



- The Accuracy is  $\pm 3^{\circ}\text{C}$  Before K type Sensor Calibration , After Calibrate Process can be Accuracy  $\pm 1^{\circ}\text{C}$ .
- Press Connect Bottom And Follow System Instruction.
- Base on Four Standard Temperature to Calibrate Node . System Will Display Relate Value (Before and After Calibration).
- The Calibration Parameter Will be Save Into The Node Automatically , Meanwhile Node Output Value Will Follow New Parameter.

# Setup System

## Software:

- (1)Coordinator Setup : NuSens Engineering tool (RF Parameter and Network Parameter Setup)
- (2)DI 、 AI 、 T&H 、 K-TYPE Setup : NuSens Engineering tool

## Tool or Interface:

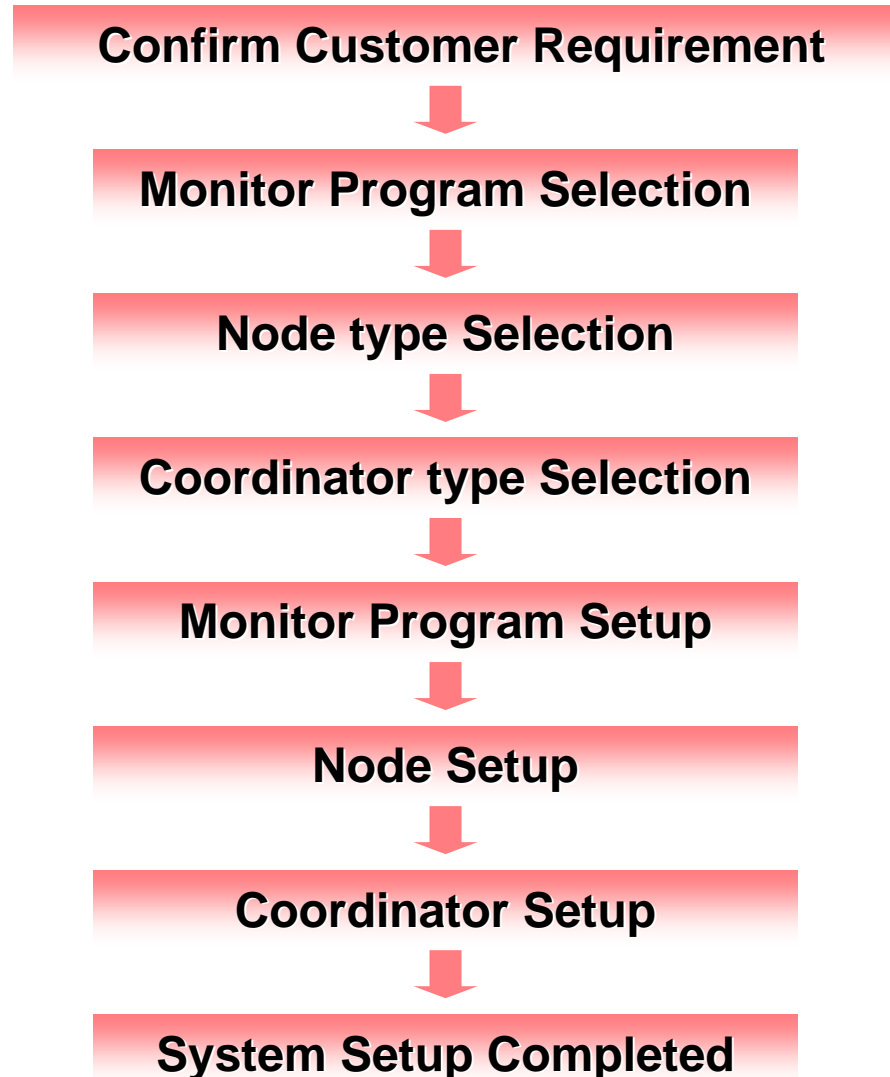
- (1)Coordinator USB: Through USB
- (2)Coordinator Ethernet : Through Ethernet
- (3)DI 、 AI 、 T&H 、 K-TYPE : Through RF with Coordinator

## Backend Software :

- (1)NuSens Server (UDP,UART)
- (2) Another Software (Modbus TCP)



# Setup System Flow

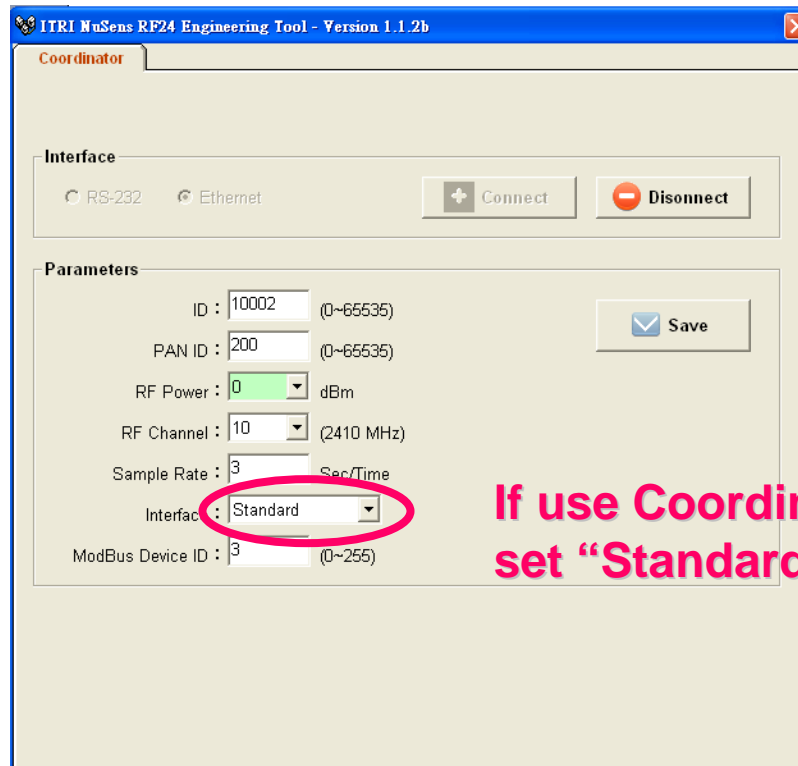


# Setup System - NuSens Server UDP or UART(1)

## •Step1

(1)Coordinator RS-232:PCNeed Install USB Driver” CP210xVCPInstaller.exe” , And use NuSens Engineering tool Setup Coordinator Parameter And IP

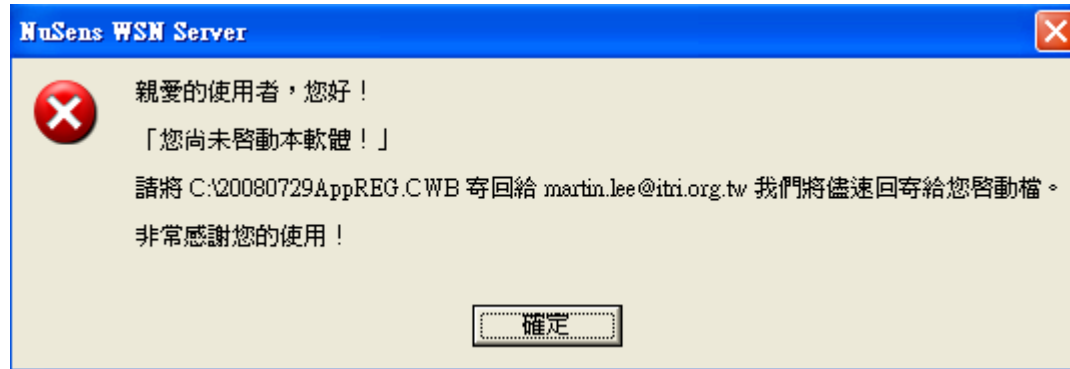
(2)Coordinator UDP: Use NuSens Engineering tool Setup Coordinator Parameter And IP



If use Coordinator UDP then set “Standard UDP”

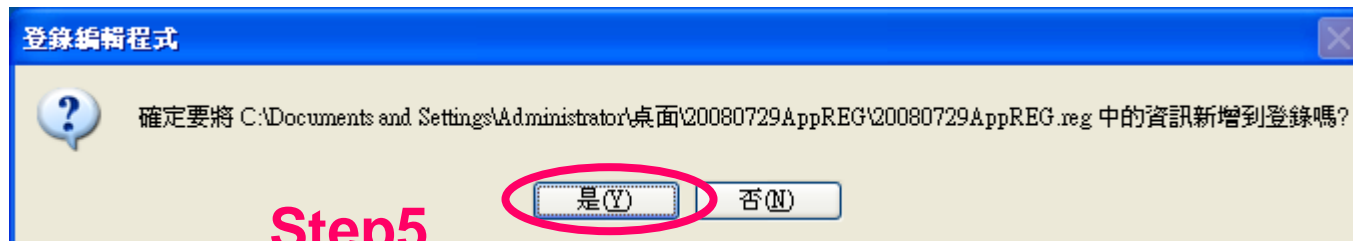
# Setup System - NuSens Server UDP or UART(2)

## Step2 Install NuSens WSN Server



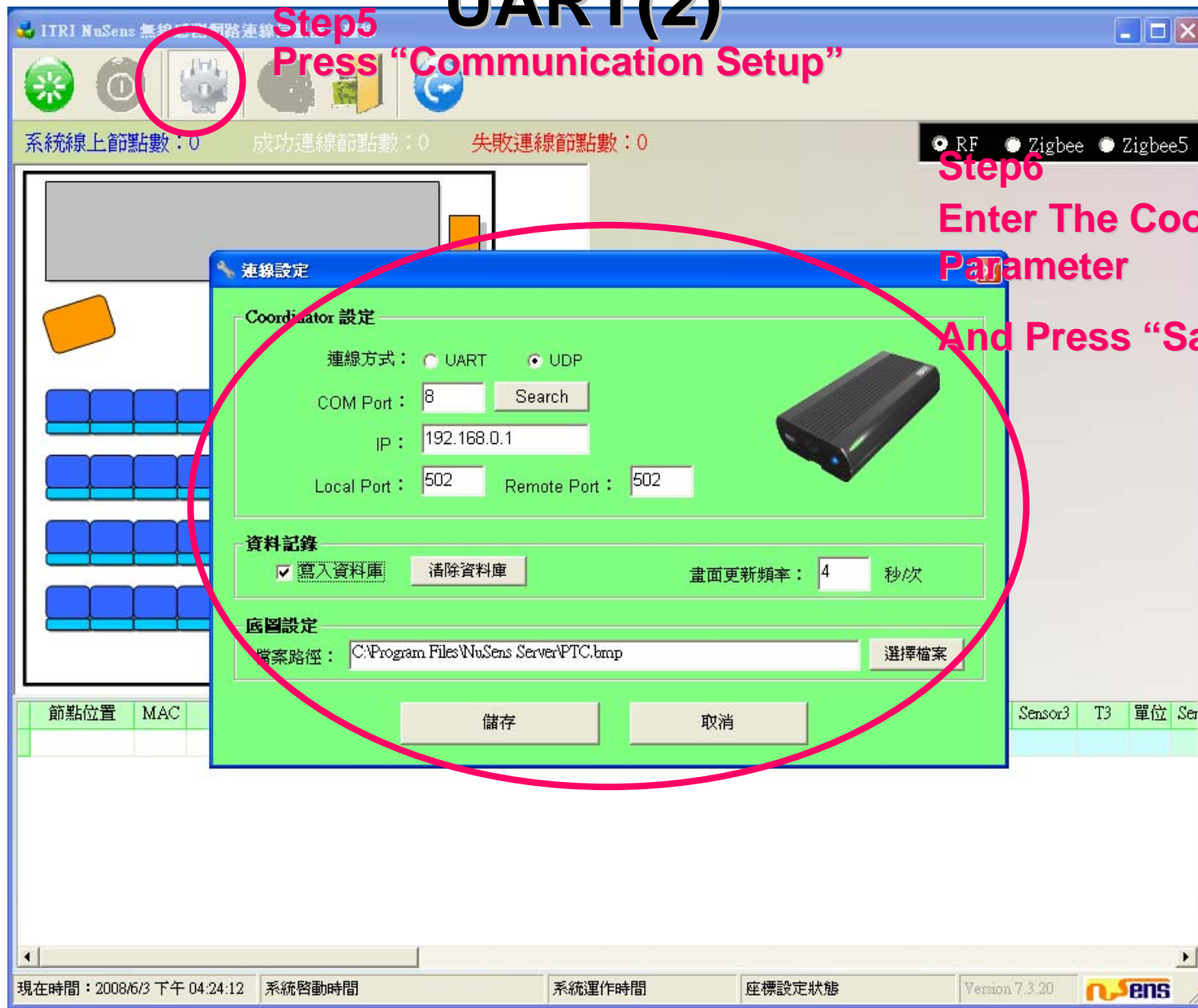
## Step3 Send The200XXXXXAppREG.CWB to martin.lee@itri.org.tw

## Step4 Execute 200XXXXXAppREG.reg



## Step5

# Setup System -NuSens Server UDP or UART(2)



# Setup System - NuSens Server UDP or UART(3)



**Step7**  
Press "Connect"

系統線上節點數: 0    成功連線節點數: 0    失敗連線節點數: 0

RF    Zigbee    Zigbee5

**載入座標**

是否載入

確定    取消

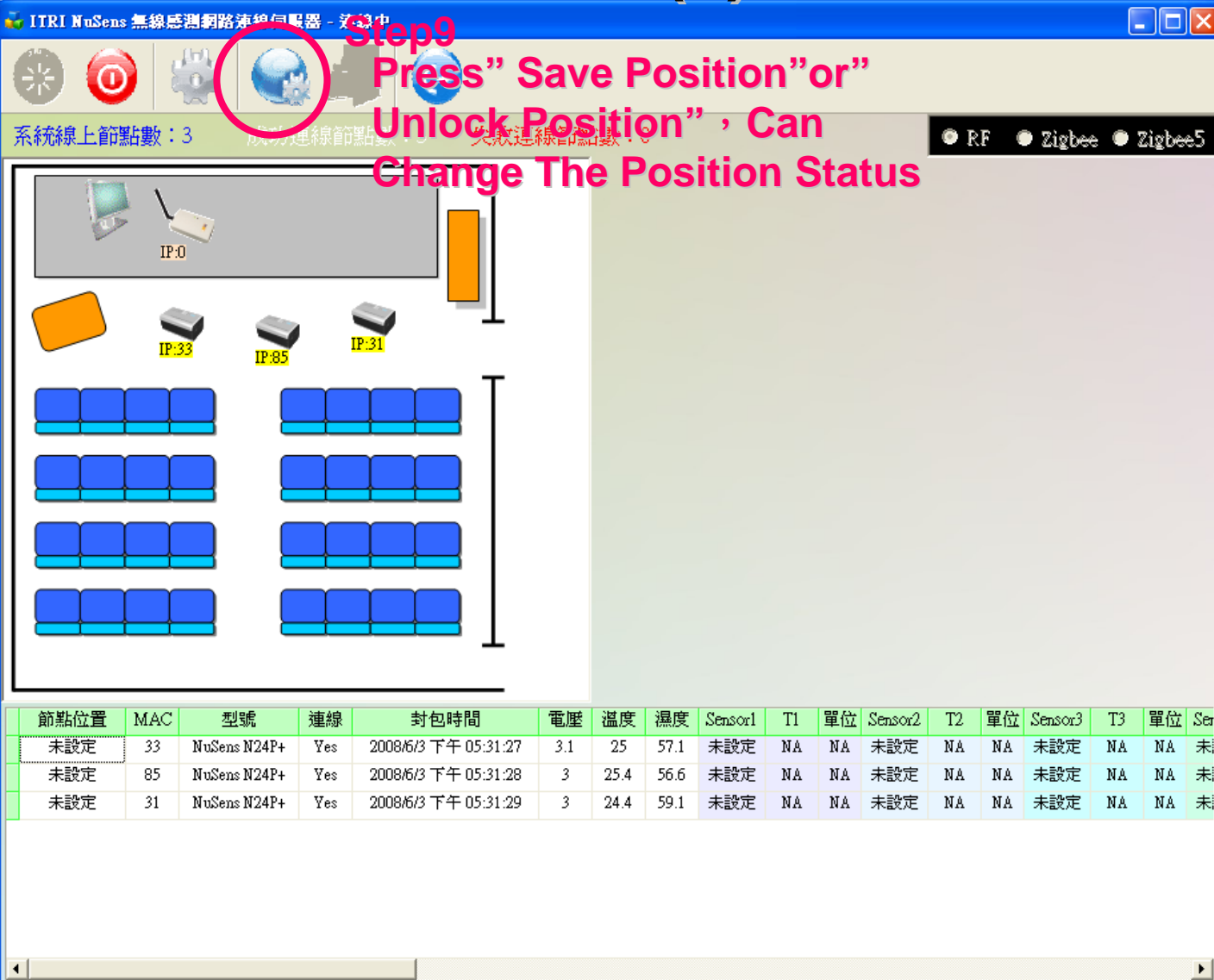
**Step8**  
Select If you Want to Load The Position

節點位置	MAC	型號	連線	封包時間	電壓	溫度	濕度	Sensor1	T1	單位	Sensor2	T2	單位	Sensor3	T3	單位	Sen

現在時間: 2008/6/3 下午 05:25:46    系統啟動時間    系統運作時間    座標設定狀態    Version 7.3.21    


# Setup System - NuSens Server UDP or UART(4)

**Step 9**  
Press "Save Position" or "Unlock Position", Can Change The Position Status



The screenshot shows the ITRI NuSens software interface. At the top, there is a toolbar with several icons. One icon, representing a globe or network, is circled in red. Below the toolbar, there is a status bar showing '系統線上節點數: 3' (System online nodes: 3). The main area displays a network diagram with a central node labeled 'IP:0' and three peripheral nodes labeled 'IP:33', 'IP:85', and 'IP:31'. Below the diagram, there is a table with columns for node location, MAC, model, connection status, and various sensor readings.

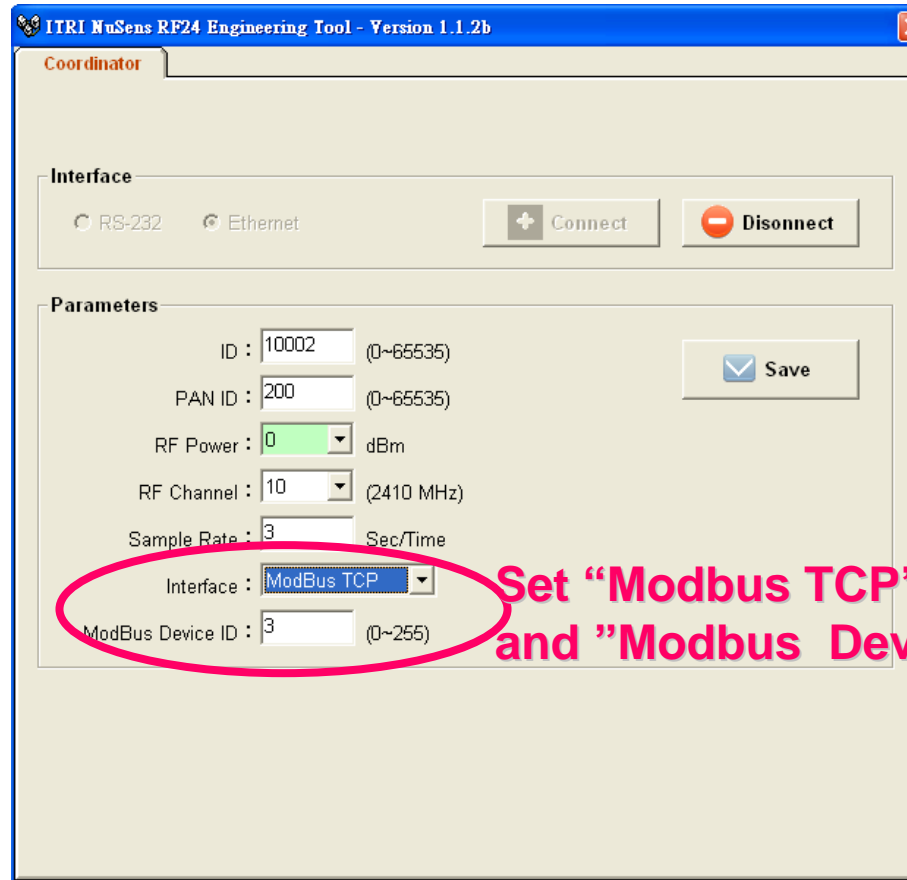
節點位置	MAC	型號	連線	封包時間	電壓	溫度	濕度	Sensor1	T1	單位	Sensor2	T2	單位	Sensor3	T3	單位	Se
未設定	33	NuSens N24P+	Yes	2008/6/3 下午 05:31:27	3.1	25	57.1	未設定	NA	NA	未設定	NA	NA	未設定	NA	NA	未
未設定	85	NuSens N24P+	Yes	2008/6/3 下午 05:31:28	3	25.4	56.6	未設定	NA	NA	未設定	NA	NA	未設定	NA	NA	未
未設定	31	NuSens N24P+	Yes	2008/6/3 下午 05:31:29	3	24.4	59.1	未設定	NA	NA	未設定	NA	NA	未設定	NA	NA	未

現在時間: 2008/6/3 下午 05:31:31    系統啟動時間: 2008/6/3 下午 05:30:28    系統運作時間: 0天 00:01:03    座標設定狀態: 鎖定    Version 7.3.21    

# Setup System - Modbus

## •Step1

**Coordinator TCP:** Use NuSens Engineering tool Setup Coordinator Parameter And IP



ITRI NuSens RF24 Engineering Tool - Version 1.1.2b

**Coordinator**

**Interface**

RS-232 Ethernet

Connect Disconnect

**Parameters**

ID : 10002 (0~65535)

PAN ID : 200 (0~65535)

RF Power : 0 dBm

RF Channel : 10 (2410 MHz)

Sample Rate : 3 Sec/Time

Interface : **ModBus TCP**

ModBus Device ID : 3 (0~255)

Save

Set "Modbus TCP" and "Modbus Device ID"

## **FCC Compliance and Advisory Statement**

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.

This equipment has been tested and found to comply with the limits for a Class B digital device, according 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 instructions, may cause harmful interference to radio communications. However, there is no guarantee 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 correct the interference by one or more of the following measures:

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

Any special accessories needed for compliance must be specified in the instruction manual.

**Warning:** A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used. Use only shielded cables to connect I/O devices to this equipment.

**CAUTION:** Any changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.