ZT-2000 DIO SERIES

Quick Start

1 What's in the Shipping Package?

The shipping package contains the following items:



ZT-2000 DIO Device



ANT-124-05

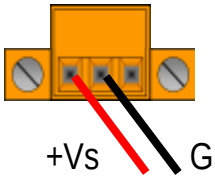


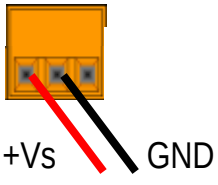
Quick Start

If any of these items are missing or damaged, please contact your local distributor for more information. Save the shipping materials and cartons in case you need to ship the module in the future.

2 Preparing the Device

1. Refer the chapter 3. to configure the DIP switch of ZT-2000 I/O device.
2. Install the ZT Configuration Utility to configure the ZT-2000 coordinator.
   CD: \Napdos\ZigBee\ZT_Series\Utility
   http://ftp.icpdas.com/pub/cd/usbcd/napdos/zigbee/zt_series/utility
3. Power Supply: +10 ~ +30 V_{DC}





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3 Setting up the ZT-2000 DIO Device

3.1 Introduction to the Configuration Parameters

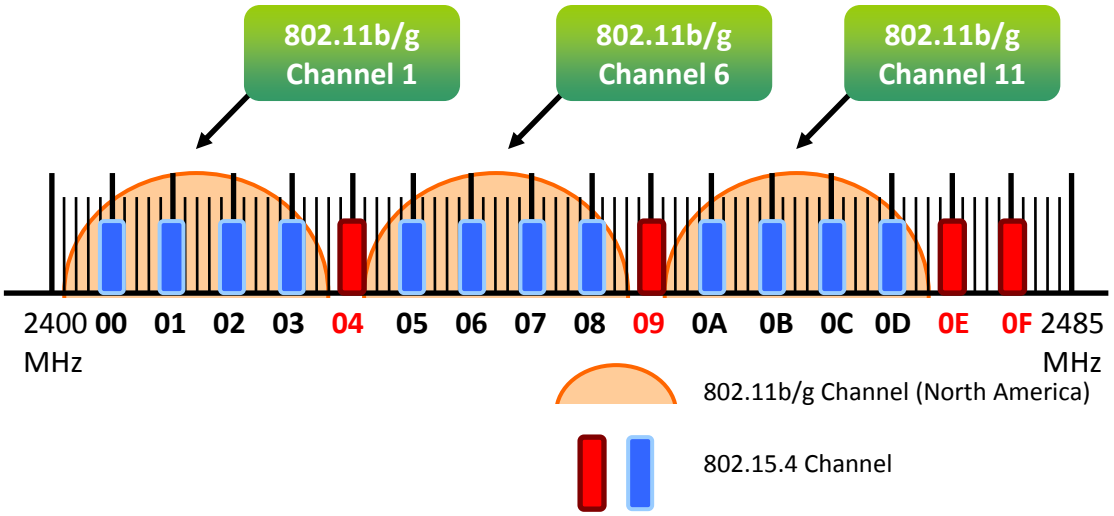
A. "Pan ID" parameter is the group identity for a ZigBee network, and must the same for all devices in the same ZigBee network.

"Address/Node ID" parameter is the individed identity of a specific the ZigBee module, and must be unique for each device connected the same ZigBee network.

B. "RF Channel" parameter indicates the radio frequency channel, and must be set to the same value as other modules on the same ZigBee network.

Channel	0x00	0x01	……	0x0F
Frequency(MHz)	2405	2410	……	2480

※ *RF channels 0x04, 0x09, 0x0E or 0x0F are recommended because they do not overlap with the Wi-Fi frequencies based.*



C. Protocol/Application Mode :

When implementing custom programs based on different protocols, the following application modes are recommended in order to ensure communicatible

User Program Protocol	ZT-2000 I/O	ZT-2550	ZT-2570
DCON	DCON	Transparent	Transparent
Modbus RTU	Modbus RTU	Transparent Modbus Gateway	Transparent Modbus Gateway
Modbus TCP	Modbus RTU	------	Modbus Gateway

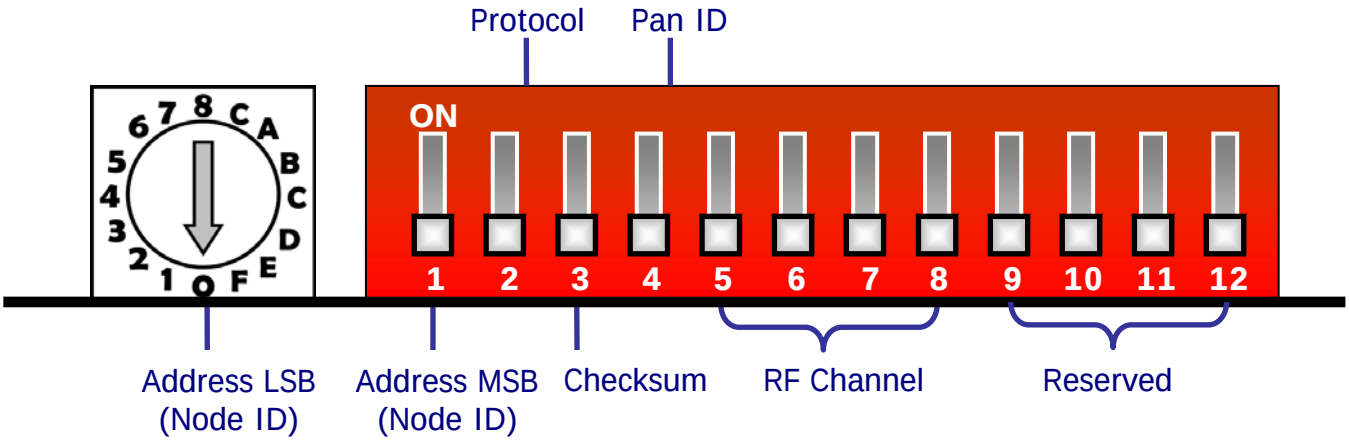
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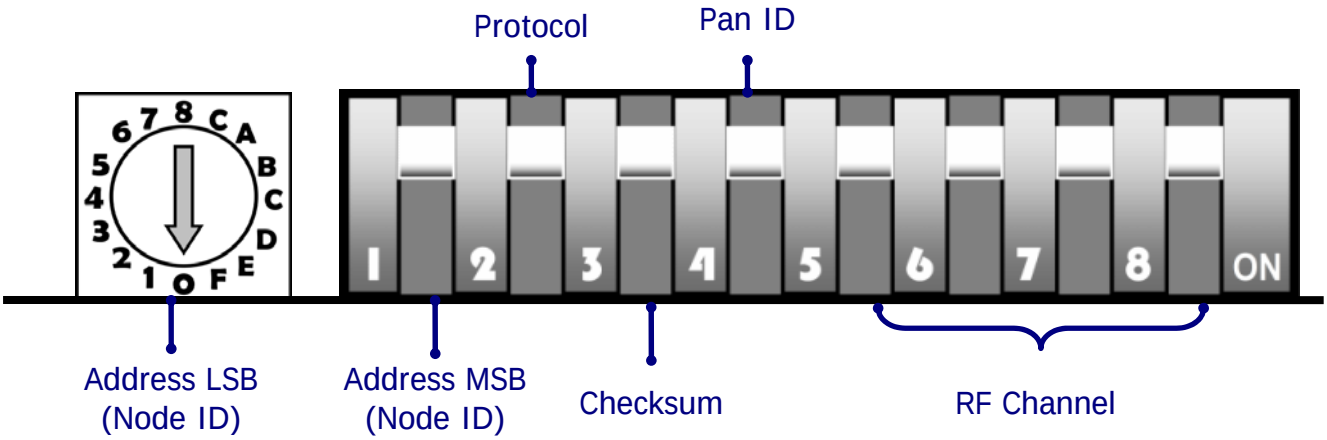
4 Rotation Switch and DIP Switch

The configuration of ZT-2000 series can be adjusted by using the external rotary switch and the DIP switches. The ZT-2000 device should only be rebooted once the configuration is complete.

- DIP Switch to the ZT-2042/ZT-2043/ZT-2053/ZT-2055



- DIP Switch to the ZT-2052/ZT-2060



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➢ Rotation Switch

	0	1	2	3	……	F	Note
Address	SW	01	02	03	……	0F	MSB = 0
Node ID	SW	0x0001	0x0002	0x003	……	0x000F	
	0	1	2	3	……	F	
Address	10	11	12	13	……	1F	MSB = 1
Node ID	0x0010	0x0011	0x0012	0x013	……	0x001F	

※ *Once the address of hardware switch is set to 0x00, it mens the address is using software configurations. Refer the more detailed information at Sec. 6.6 of user manual.*

➢ DIP Switch

Number	Item	Status	Explain
1	Address MSB	OFF	Valid Address (Node ID) from 0x00 to 0x0F
		ON	Valid Address (Node ID) from 0x10 to 0x1F
2	Protocol	OFF	DCON Protocol
		ON	Modbus RTUProtocol
3	Checksum	OFF	Disabled
		ON	Enabled
4	ZigBee Pan ID	OFF	Pan ID = 0x0000
		ON	Pan ID = 0x0001
5	ZigBee RF Channel	OFF	------
		ON	0x08
6		OFF	------
		ON	0x04
7		OFF	------
		ON	0x02
8		OFF	------
		ON	0x01

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5 Start-up ZT-2000 I/O Device

As the ZigBee network is controlled by the ZigBee coordinator, the ZT-2550/ZT-2570 (ZigBee coordinator) must be configured first. Please refert to documents shown below for full details of how to configure these devices.

Once configuration of the ZigBee coordinator has been completed. Set the ”Pan ID” and the “RF Channel” values for the ZT-2000 I/O device to the same values as the network, and then reboot the device. The module will automatically start to function on the ZigBee network using the default protocol.

※ **Documents**

http://ftp.icpdas.com.tw/pub/cd/usbcd/napdos/zigbee/zt_series/document/zt-255x/
http://ftp.icpdas.com.tw/pub/cd/usbcd/napdos/zigbee/zt_series/document/zt-257x/

※ **Configuration Utility** (Used to configure ZT-2000 I/O device Coordinator)

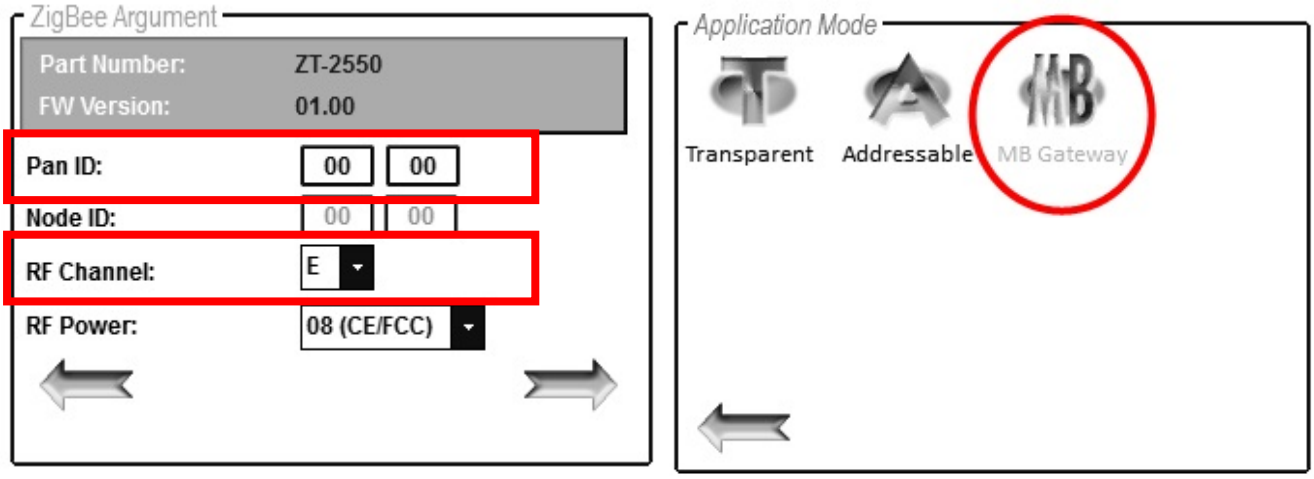
http://ftp.icpdas.com.tw/pub/cd/usbcd/napdos/zigbee/zt_series/utility/

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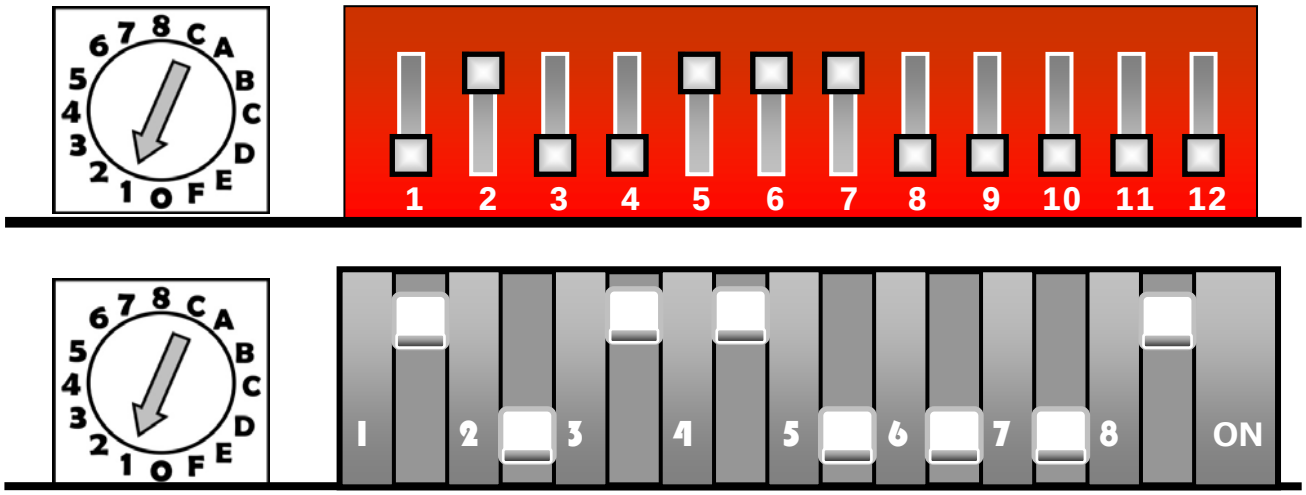
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6 Examples

➢ Configurations of ZT-2550/ZT-2570



➢ Configurations of ZT-2000 I/O Device



Number	Item	Status	Explain	
1	Address MSB	OFF	Address/Node ID is **01**(Rotation Switch=1)	
2	Protocol	ON	Use **Modbus RTU** Protocol	
3	Checksum	OFF	Disabled	
4	ZigBee Pan ID	OFF	Pan ID=**0x0000**	
5	ZigBee RF Channel	ON	0x08	ZigBee RF Channel = **0x0E**
6		ON	0x04	
7		ON	0x02	
8		OFF	------	

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7 Communication Test

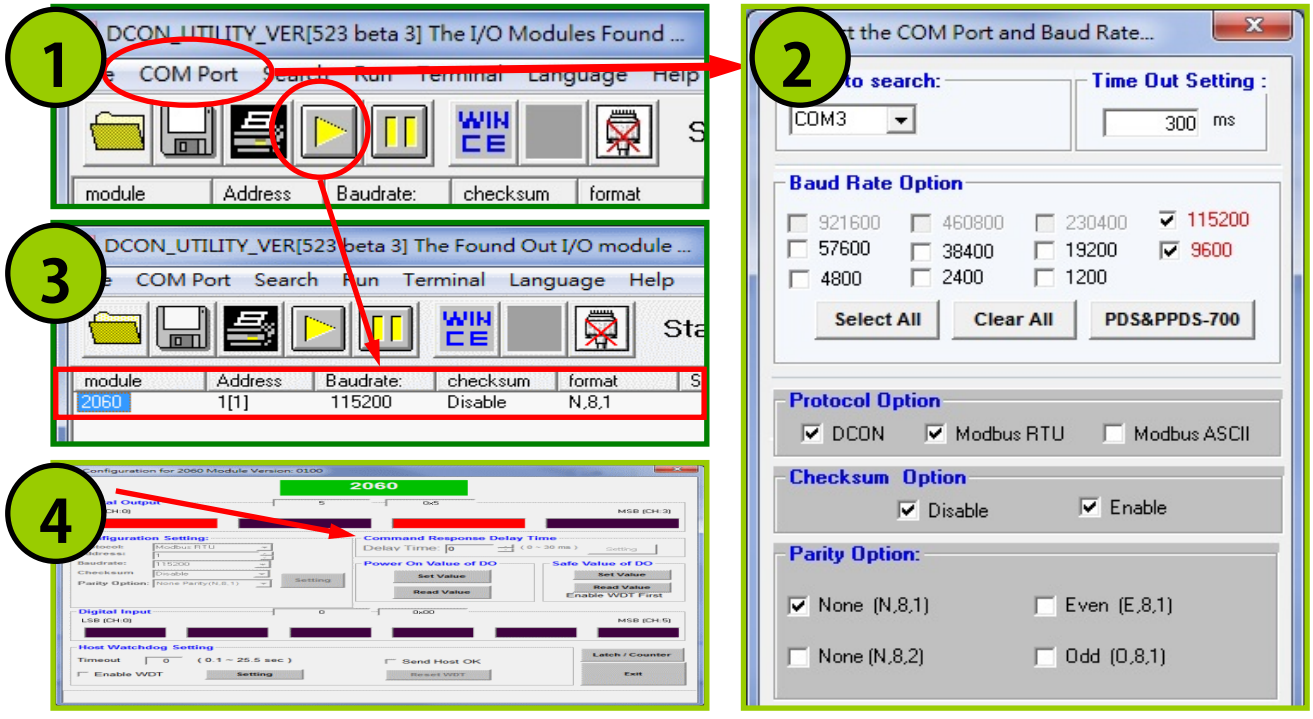
Once the ZT-2000 I/O device has joined the ZigBee network, the signal quality can be comfirmed by monitoring the status of the ZigBee Net LED indicators. If the LED indicator shows a steady light, communication with the ZT-2000 I/O device has been successfully established for data acquisition and control.

ICP DAS also provides the “DCON Utility”, which can be used to simulate DCON/Modbus communication. This software can also be used to verify the device settings and ZigBee I/O functions.

※ The **DCON Utility** can be dowmload from:
http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/

➢ Simulate I/O channel operating via using DCON Utility

1. Launch DCON Utility and select the correct COM Port settings to connect the ZigBee Coordinator (ZT-2550/ZT-2570).
2. Clicking “Search” button will start searching which ZT-2000 I/O device is in the same ZigBee network.
3. If there is any ZT-2000 I/O devices displayed, double clicking the “module name” will start the I/O channels operated platform.



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8 Troubleshooting

(1) Technical Support.

If you have any difficulties using your ZT-2000 series I/O device, please send a description of the problem to service@icpdas.com

Include the following items in your email:

- *A description or diagram of the current DIP switch positions.*
- *A copy of the configuration file for the ZT-2000 coordinator. This file can be obtained using the procedure outlined below and should be attached to your email.*

a. Set the DIP switch of the ZT-255x device to the [ZBSET] position then reboot the device. Launch the ZT Configuration Utility and select [Save Log] icon to save the configuration of the ZT-255x as a file.

b. After clicking the [Save Log] icon, enter the “File Name” and the “File Path” in the Windows “Save” dialog box. Once the configuration has been successfully saved, the following message will be displayed.

(2) LED Indicator Status :

LED Indicator	Status	Introduction
	ZigBee Router (Slave)	
	Steady Lit	The Signal is Strong
	Blinking (500 ms)	The Signal is Available
	Blinking (1s)	The Signal is Weak
	Blinking (2s)	The Signal is Unstable or There is no Available
ZigBee PWR (Red LED)	The status of module board	
	Steady Lit	The Power is ON and the Module Initialization is Correct
	Blinking (200ms)	Module Initialization Failure
	Blinking (1s)	Watchdog is Enabled and the status of the I/O channel has been changed to the Safe Value. Reset the module via the power switch or configuration commands.
	Steady Unlit	The Power is OFF
ZigBee DI/DO	The status of DI/DO channels	
	Steady Lit	The DI/DO channel is Enabled
	Steady Unlit	The DI/DO channel is Disabled

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