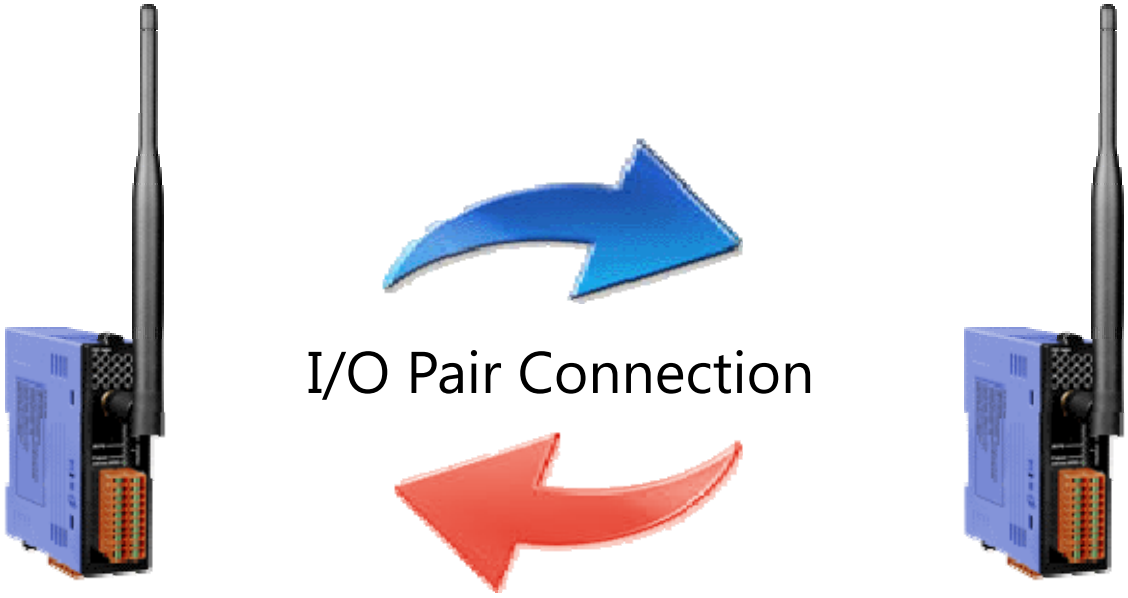


ZigBee Wireless Pair Connection

ZT-2000-IOP Series

User Manual

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ZT-2000-IOP SERIES

User Manual

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Warning

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1 Introduction

1.1 Introduction to ZigBee

ZigBee is a specification for a suite of high-level communication protocols using small, low-power digital radios based on the IEEE 802.15.4 standard for personal area networks. ZigBee devices are often used in mesh network form to transmit data over longer distances, passing data through intermediate devices to reach more distant ones. This allows ZigBee networks to be formed ad-hoc, with no centralized control or high-power transmitter/receiver required in order to reach all of the devices. Any ZigBee device can be tasked with running the network.

ZigBee is targeted at applications that require a low data rate, long battery life, and secure networking. The ZigBee protocol has a defined transmission rate of 250 kbit/s, and is best suited for periodic or intermittent transmission of data, or for a single signal transmission from a sensor or input device. Applications include wireless light switches, electrical meters with in-home-displays, traffic management systems, and other consumer and industrial equipment that requires short-range wireless transfer of data at relatively low rates. The technology defined by the ZigBee specification is intended to be simpler and less expensive than other WPAN implementations.

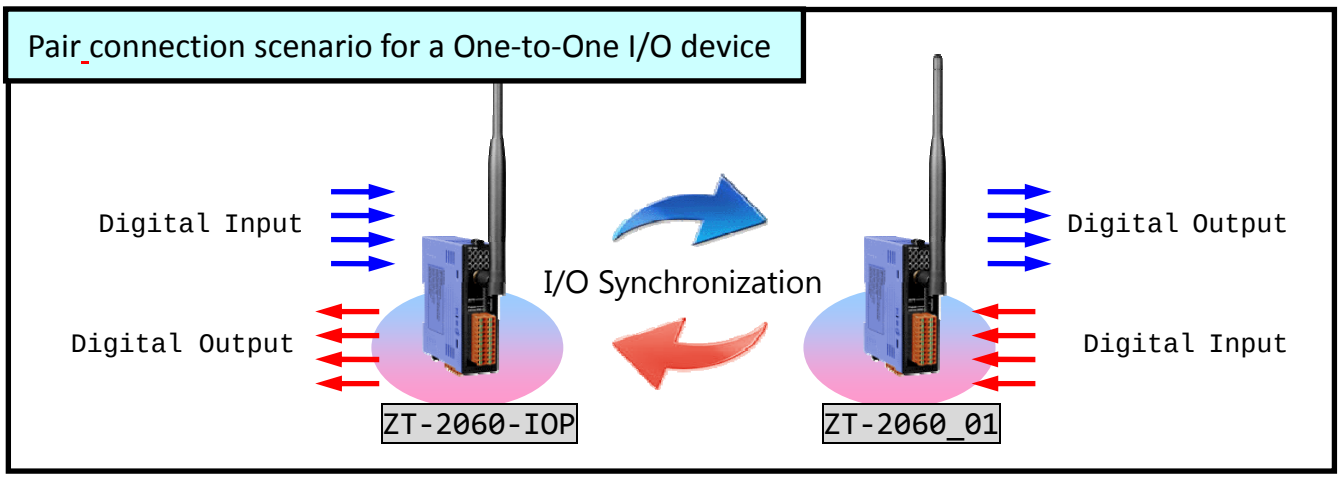
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1.2 Introduction to the ZT-2000-IOP Series of Devices

The ZT-2000-IOP series is a family of ZigBee coordinators that provide digital input/output capabilities. An embedded I/O channel binding function means that there is no need to use an external controller, and the status of each channel is bound to a remote channel of the ZT-2000 I/O device.

The ZT-2000-IOP series controller continually updates the status of the DO channel on the remote ZT-2000 I/O device based on its own DI channels. It also reads the status of the DI channel on the remote ZT-2000 I/O device to synchronize its own DO channels.

The ZT-2000-IOP series controller contains external DIP switches that allow easy configuration and can be used to synchronize the digital signals in any challenging wiring environment.



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1.3 Introduction to the ZT-2052-IOP Module

The ZT-2052-IOP module acts as a ZigBee coordinator and provides 8-channel digital input. In the default configuration, the ZT-2052-IOP is combined with a ZT-2042 module in a fixed pair structure to enable I/O pair connection functionality. For details of how to create a paired connection between the ZT-2052-IOP module and any other ZT-20XX device, see Section 6.3 Software Configuration.

1.4 Introduction to the ZT-2053-IOP Module

The ZT-2053-IOP module acts as a ZigBee coordinator and provides 14-channel digital input. In the default configuration, the ZT-2053-IOP is combined with a ZT-2043 module in a fixed pair structure to enable I/O pair connection functionality. For details of how to create a paired connection between the ZT-2053-IOP module and any other ZT-20XX device, see Section 6.3 Software Configuration.

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1.5 Introduction to the ZT-2055-IOP Module

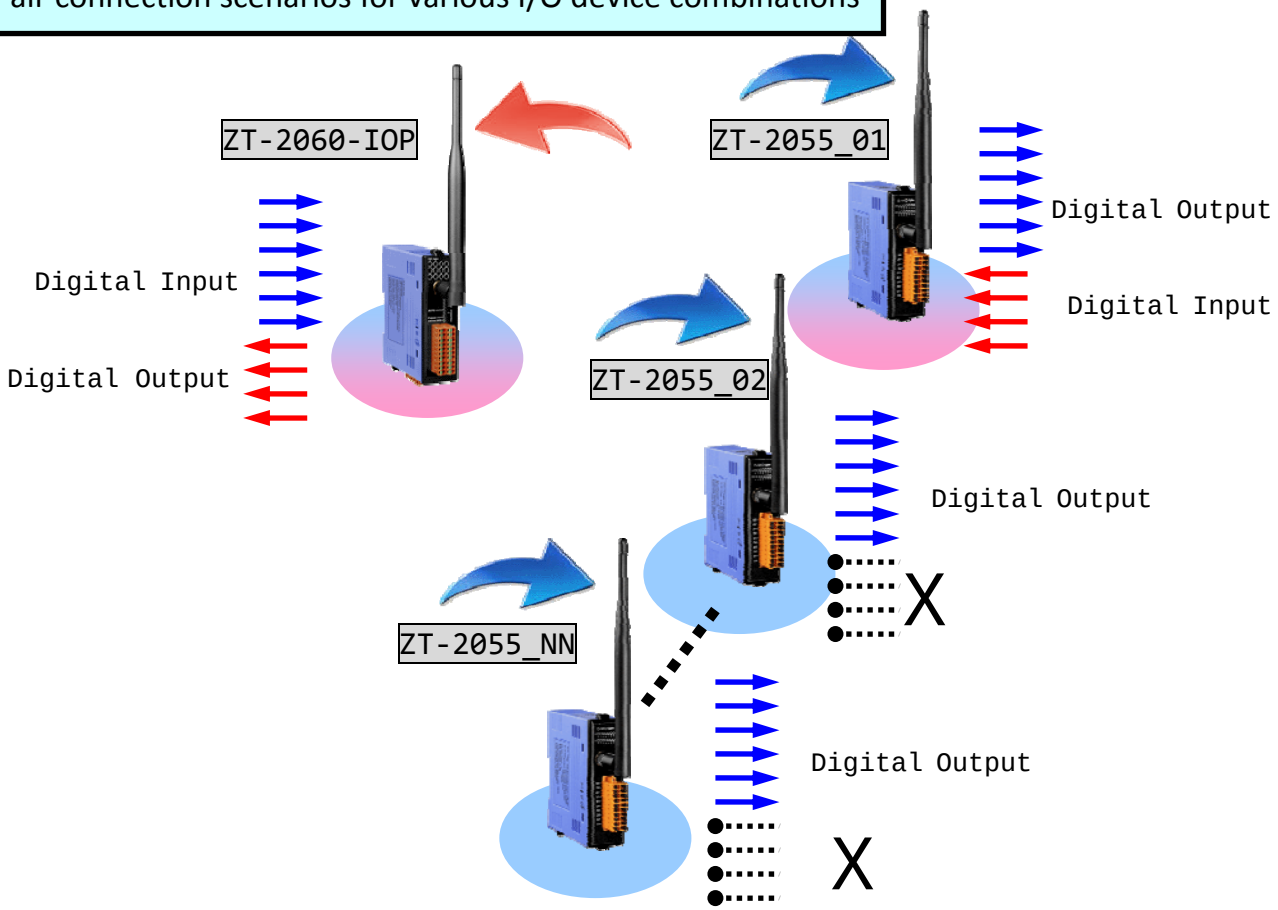
The ZT-2055-IOP module acts as a ZigBee coordinator and provides 8 isolated channels for digital input and 8 isolated channels for digital output. In the default configuration, the ZT-2055-IOP is combined with a ZT-2055 module in a fixed pair structure to enable I/O pair connection functionality. For details of how to create a paired connection between the ZT-2055-IOP module and any other ZT-20XX device, see Section 6.3 Software Configuration.

1.6 Introduction to the ZT-2060-IOP Module

The ZT-2060-IOP module acts as a ZigBee coordinator and provides both 6-channel digital input and 4-channel digital output. In the default configuration, the ZT-2060-IOP is combined with a ZT-2060 module in a fixed pair structure to enable I/O pair connection functionality. For details of how to create a paired connection between the ZT-2060-IOP module and any other ZT-20XX device, see Section 6.3 Software Configuration.

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Pair connection scenarios for various I/O device combinations



ZT-2060-IOP (6 DI & 4 DO) is paired with ZT-2055 (8 DI & 8 DO)

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2 Hardware Information

2.1 Specifications

➢ Specifications Common to ZT-2000-IOP Series Modules

General	
Protocols	Supports DCON and Modbus RTU Protocols
Hot Swap	Rotary and DIP switch
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal
EFT (IEC 61000-4-4)	±4 kV for Power Line
Surge (IEC 61000-4-5)	±3 kV for Power Line
Mechanical	
Flammability	Fire Retardant Materials (UL94-V0 Level)
Dimensions (L x W x H)	87 mm x 33 mm x 110 mm
Installation	DIN-Rail
Environmental	
Operating Temperature	-25 to +75°C
Storage Temperature	-30 to +80°C
Relative Humidity	10 to 90% RH, Non-condensing



In compliance with the EN 60950-1 declaration, ZT-2000 series devices are **NOT** portable devices and should be DIN-Rail mounted. The ZT-2000 series is **NOT** designed for the general public. Although the metal areas on the external surfaces of the equipment have no dimensions exceeding 50 mm, care should still be taken to avoid touching these surfaces both while mounting the device, and during normal use.

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➢ General ZigBee Specifications

Wireless	
RF Channels	16
RF Transmit Power	11 dBm
Antenna (2.4 GHz)	5 dBi Omni-directional Antenna
Transmit Range (LOS)	700 m (Typical)
Max. Slaves Supported	255
EMI Certification	CE/FCC, FCC ID

➢ ZT-2052 Specifications

Digital Input		
Channels		8
Wet Contact	Type	Sink/Source
	ON Voltage Level	+3.5 V_{DC} ~ +30 V_{DC}
	OFF Voltage Level	+1 V_{DC} Max.
Input Impedance		3 kΩ, 0.33 W

General		
LED Indicators	PWR	1 ZigBee Device Power Indicator (Red)
	ZigBee	1 ZigBee Communication Indicator (Green)
	DI0 ~ DI7	8 Digital Input Channel Indicators (Green)
Power		
Input Voltage Range		+10 V_{DC} ~ +30 V_{DC}
Power Consumption		1 W (Max.)
Intra-module Isolated, Field-to-Logic		3750 V_{rms}

※For other specifications, see the "Specifications Common to ZT-2000 Series Modules" and "General ZigBee Specifications" items above.

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➢ ZT-2053 Specifications

Digital Input		
Channels		14
Dry Contact	Type	Sink
	ON Voltage Level	Close to GND
	OFF Voltage Level	Open
	Effective Distance for Dry Contact	500 m Max.
Wet Contact	Type	Sink/Source
	ON Voltage Level	+3.5 V_{DC} ~ +30 V_{DC}
	OFF Voltage Level	+1 V_{DC} Max.
Input Impedance		3 kΩ, 0.33 W

General		
LED Indicators	PWR	1 ZigBee Device Power Indicator (Red)
	ZigBee	1 ZigBee Communication Indicator (Green)
	DI0 ~ DI13	14 Digital Input Channel Indicators (Green)
Power		
Input Voltage Range		+10 V_{DC} ~ +30 V_{DC}
Power Consumption		0.72 W (Max.)
Intra-module Isolated, Field-to-Logic		3750 V_{DC}

※ For other specifications, see the “Specifications Common to ZT-2000 Series Modules” and “General ZigBee Specifications” items above.

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➢ ZT-2055 Specifications

Digital Input		
Channels		8
Dry Contact	Type	Source
	ON Voltage Level	Close to GND
	OFF Voltage Level	Open
	Effective Distance for Dry Contact	500 m Max.
Wet Contact	Type	Sink/Source
	ON Voltage Level	+10 V_{DC} ~ +50 V_{DC}
	OFF Voltage Level	+4 V_{DC} Max.
Input Impedance		10 kΩ
Overvoltage Protection		±70 V_{DC}

Digital Output	
Channels	8 (Sink)
Output Type	Isolated Open Collector
Max. Load Current	700 mA/Channel
Load Voltage	+3.5 V_{DC} ~ +50 V_{DC}
Overvoltage Protection	60 V_{DC}
Overload Protection	1.4 A (with Short-circuit Protection)

General		
LED Indicators	PWR	1 ZigBee Device Power Indicator (Red)
	ZigBee	1 ZigBee Communication Indicator (Green)
	DO0 ~ DO7	8 Digital Output Channel Indicators (Red)
	DI0 ~ DI7	8 Digital Input Channel Indicators (Green)
Power		
Input Voltage Range		+10 V_{DC} ~ +30 V_{DC}
Power Consumption		2.5 W (Max.)
Intra-module Isolated, Field-to-Logic		2500 V_{DC}

※ For other specifications, see the Specifications Common to ZT-2000 Series Modules" and "General ZigBee Specifications" items above.

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➢ ZT-2060 Specifications

Digital Input		
Channels		6
Wet Contact	Type	Sink/Source
	ON Voltage Level	+3.5 V_{DC} ~ +30 V_{DC}
	OFF Voltage Level	+1 V_{DC} Max.
Input Impedance		3 kΩ, 0.33 W

Relay Output		
Output Channels		4
Output Type		Power Relay, Form A
Contact Rating		5 A @ (250 V_{AC}/ 30 V_{DC})
Max. Contact Voltage		270 V_{AC} / 125 V_{DC}
Operation Time		10 ms Max. at Rated Voltage
Release Time		5 ms Max. at Rated Voltage
Endurance	Electrical	Resistive Load: 100,000 ops. Min. (10 ops/minute)
	Mechanical	At no Load: 20,000,000 ops. Min. (300 ops/minute)
Dielectric Strength	Between contacts	750 V_{AC} for 1 Minute
	Between coil to contacts	3 kV_{AC} for 1 minute
Insulation Resistance		Min. 1000 MΩ at 500 V_{DC}
Surge Strength		5 kV (1.2 / 50us)

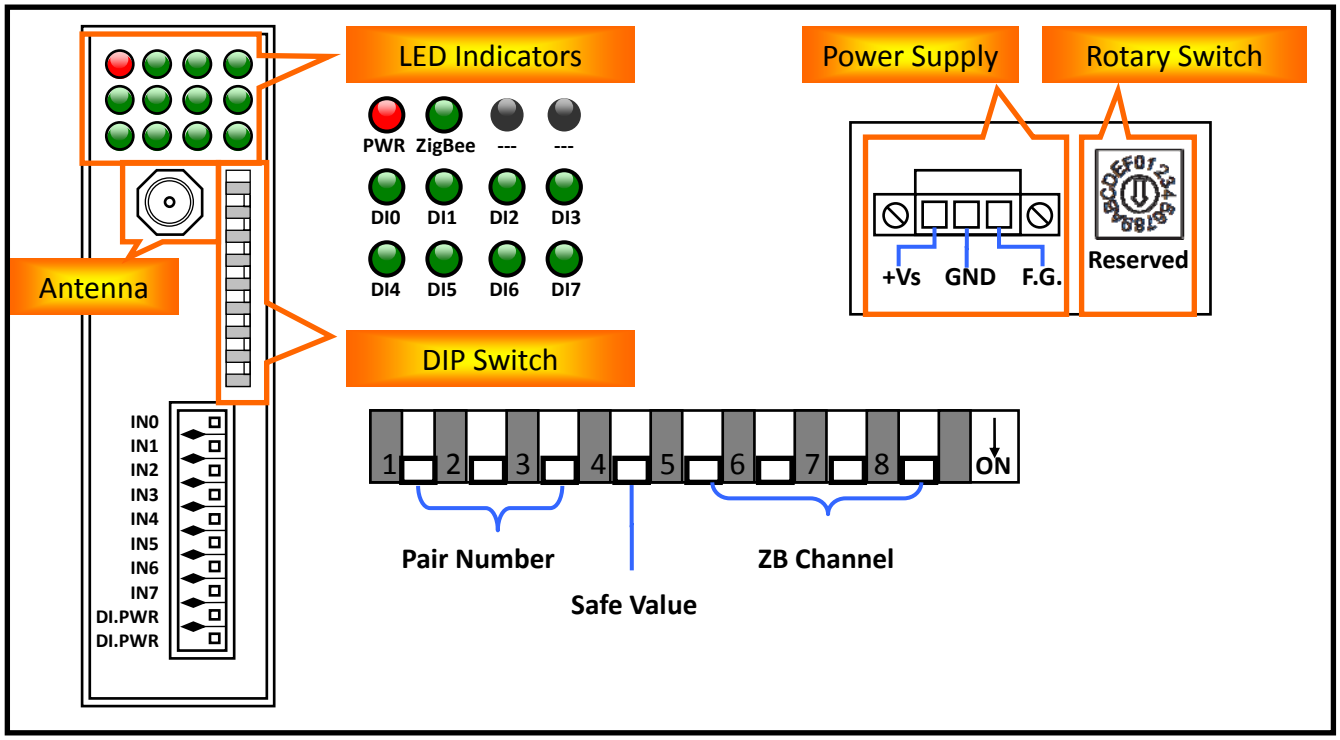
General		
LED Indicators	PWR	1 ZigBee Device Power Indicator (Red)
	ZigBee	1 ZigBee Communication Indicator (Green)
	DI0 ~ DI6	6 Digital Input Channel Indicators (Green)
	RL0 ~ RL3	4 Digital Output Channel Indicators (Red)
Power		
Input Voltage Range		+10 V_{DC} ~ +30 V_{DC}
Power consumption		1.4 W (Max.)
Intra-module Isolated, Field-to-Logic		2500 V_{DC}

※ For other specifications, see the "Specifications Common to ZT-2000 Series Modules" and "ZigBee Specifications" items above.

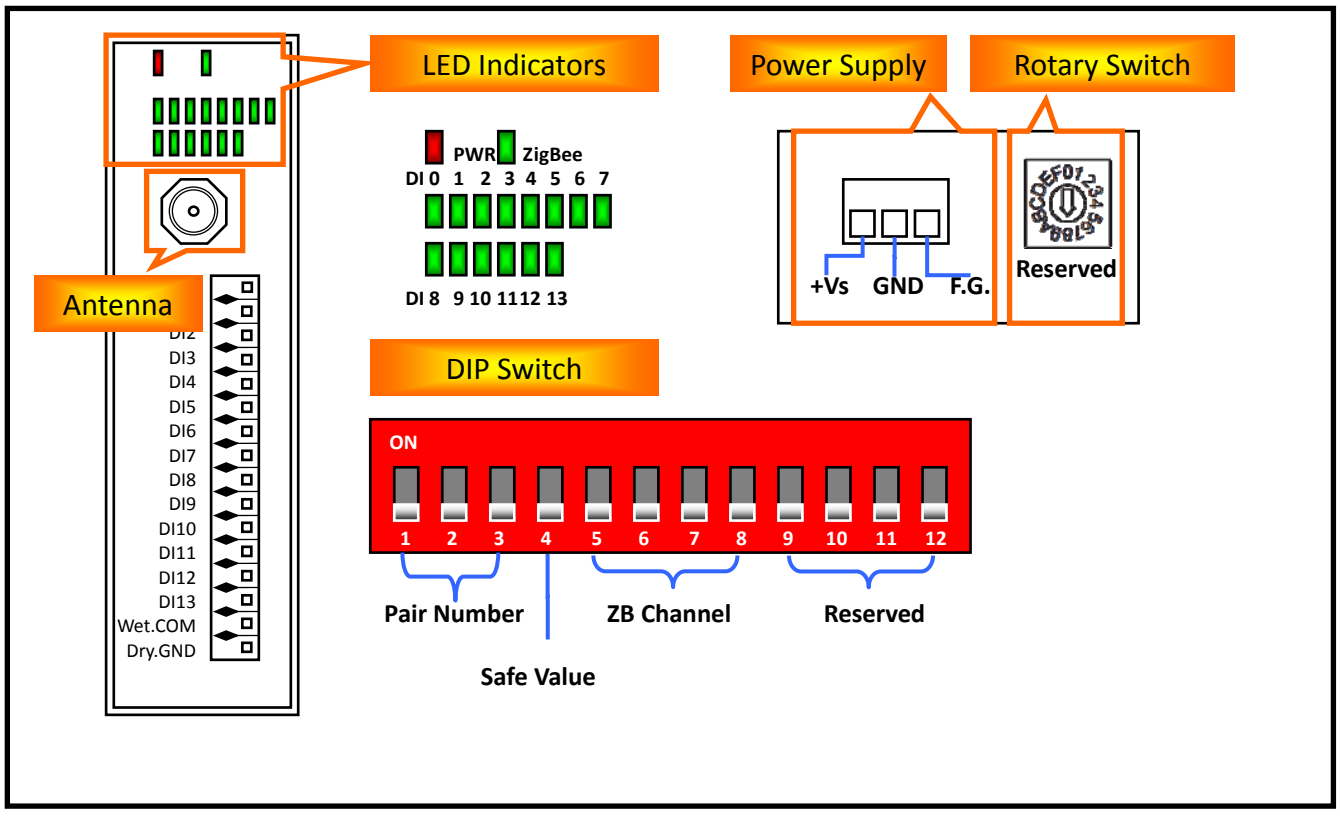
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2.2 Appearance

- ZT-2052-IOP

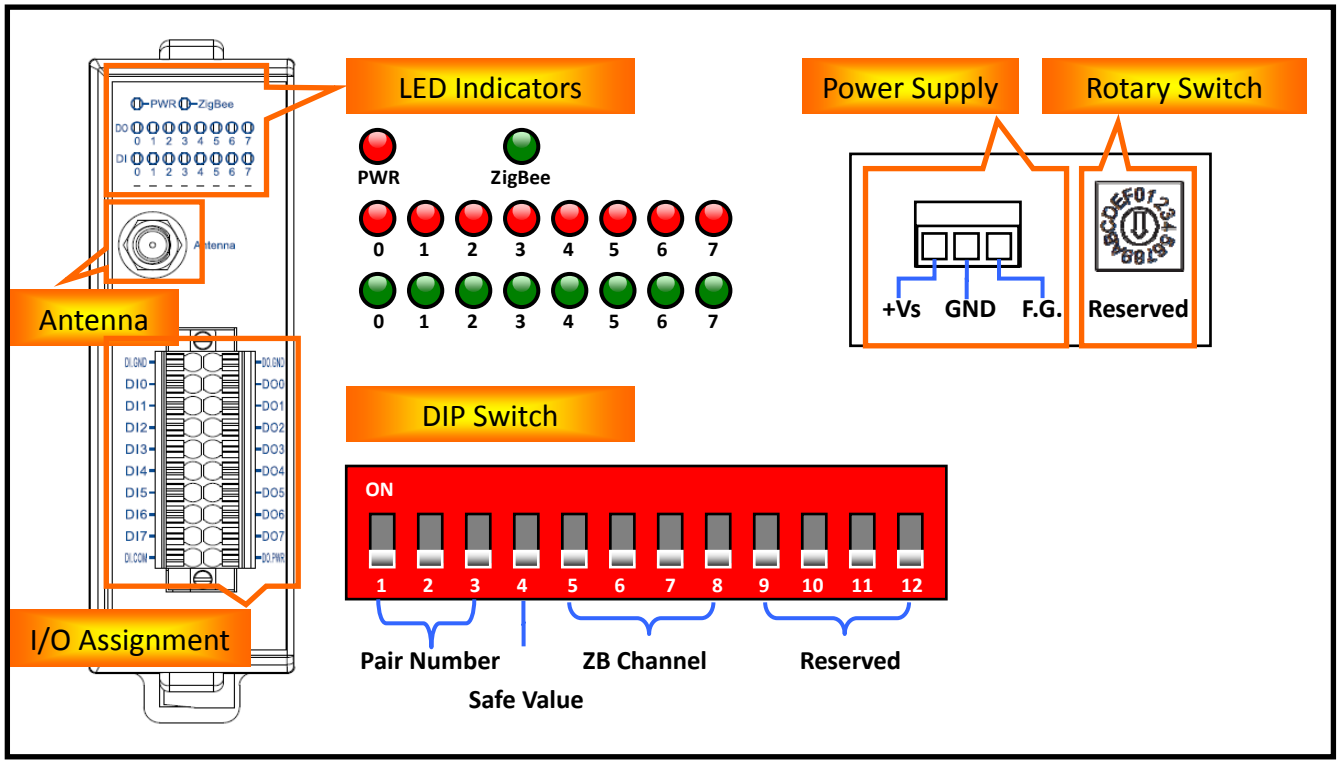


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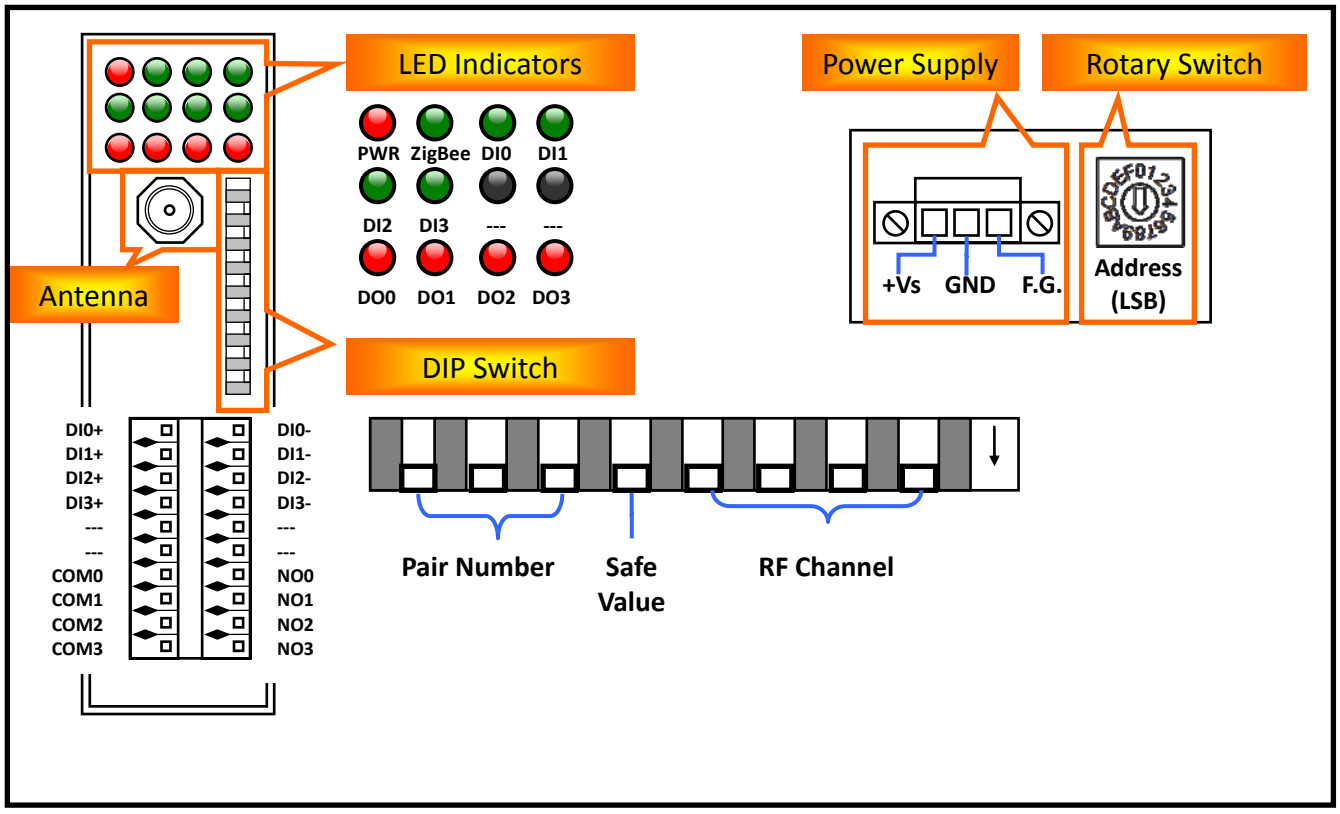


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➢ ZT-2055-IOP



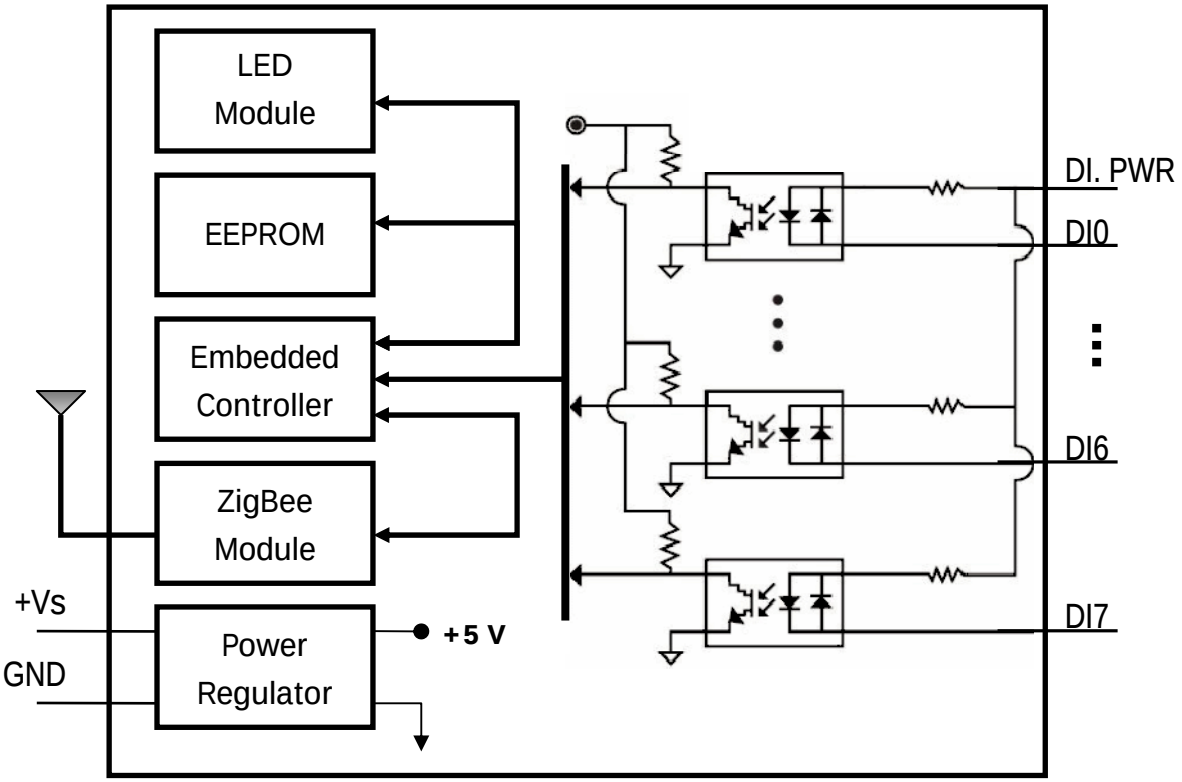
➢ ZT-2060-IOP



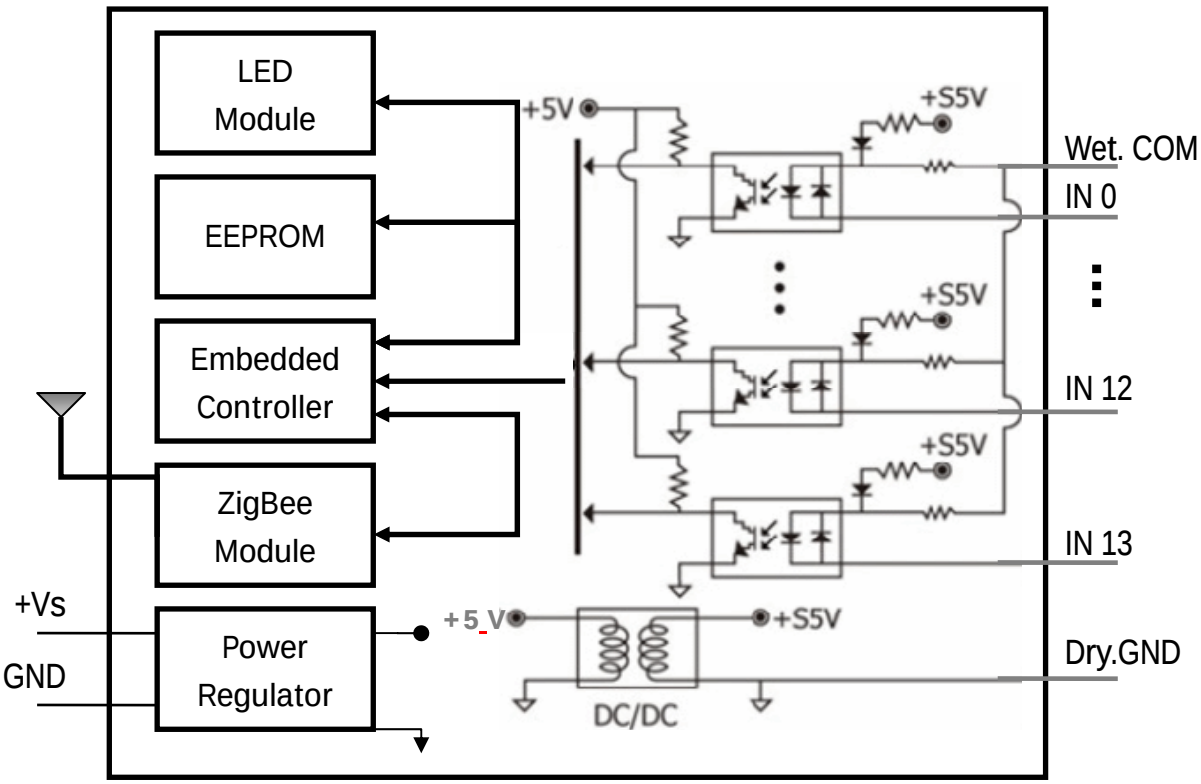
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2.3 Block Diagram

- ZT-2052-IOP

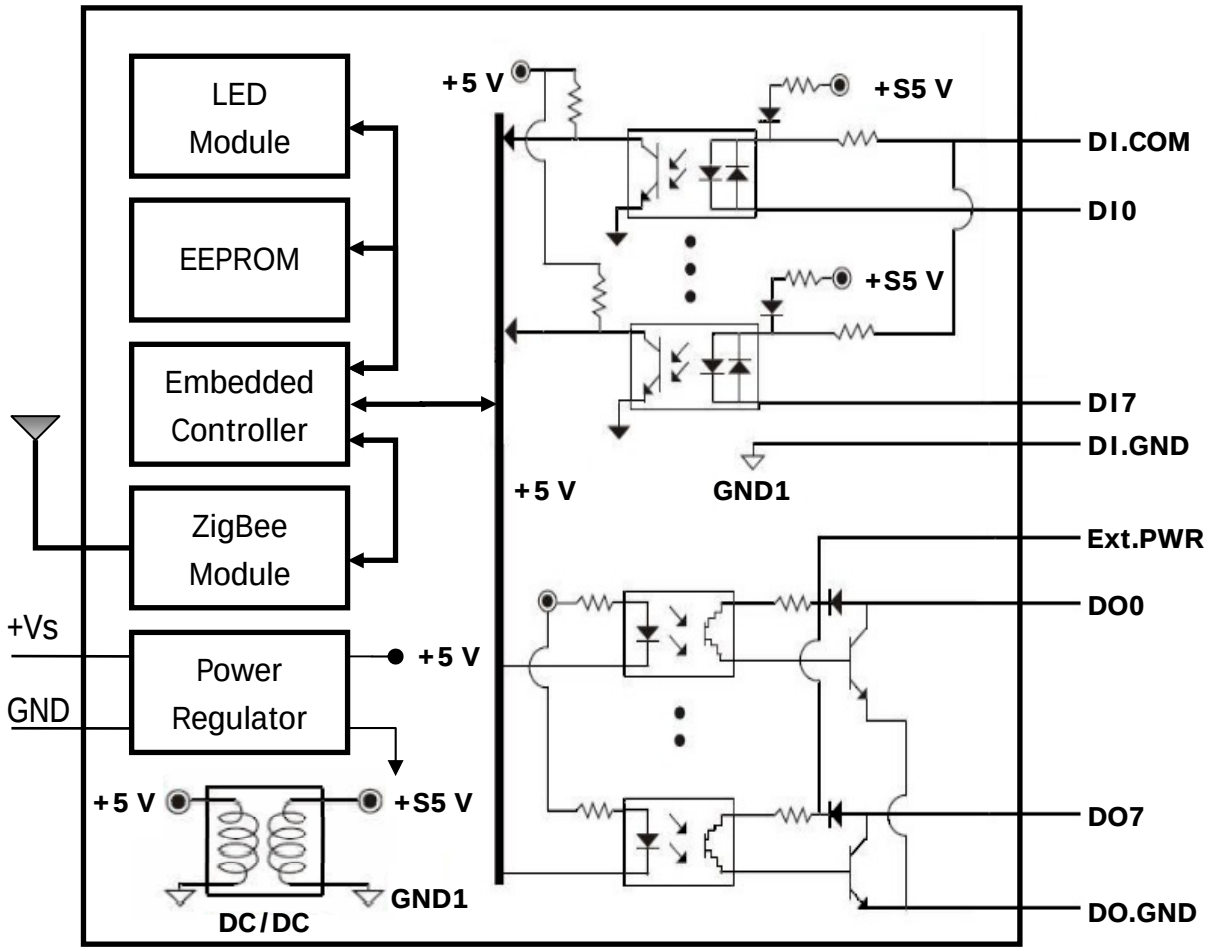


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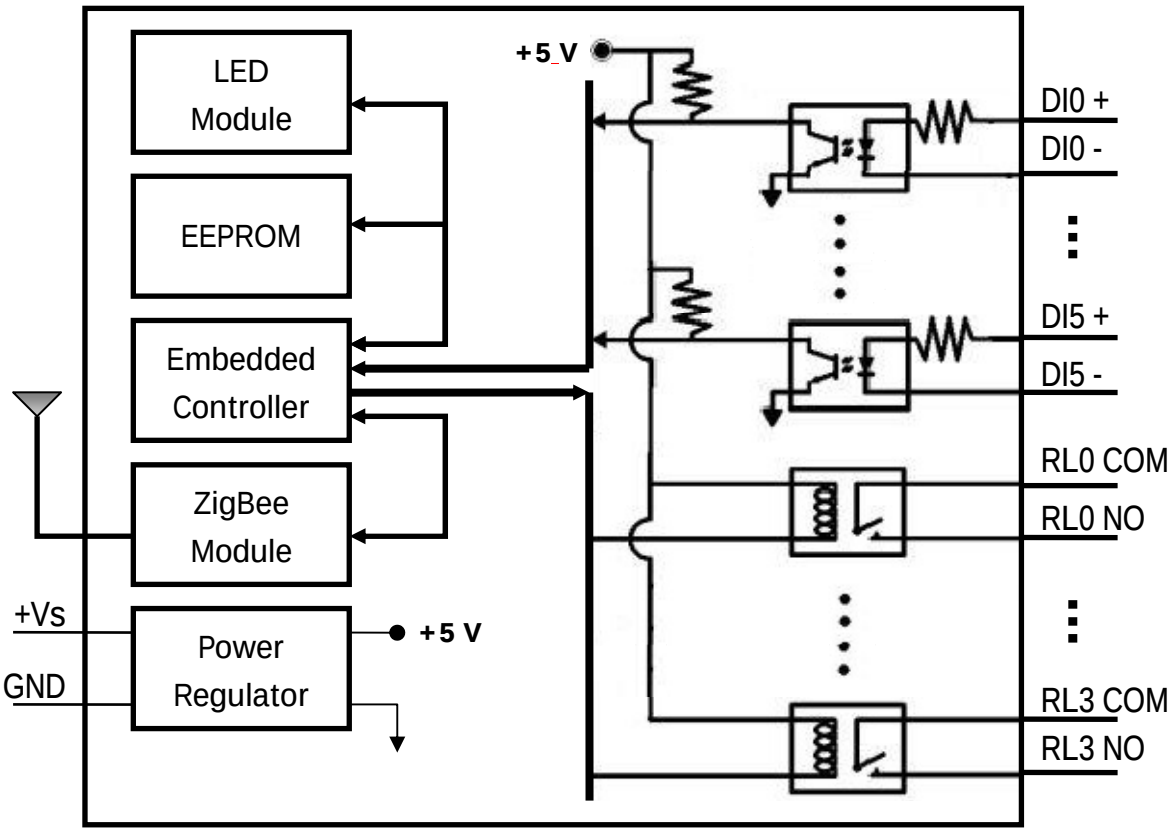


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- ZT-2055-IOP



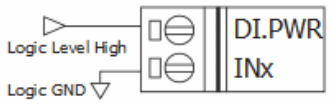
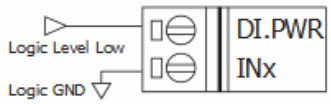
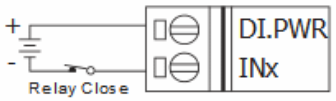
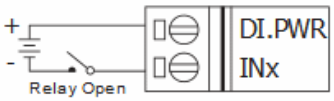
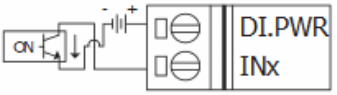
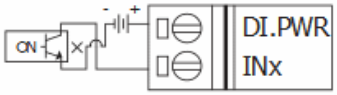
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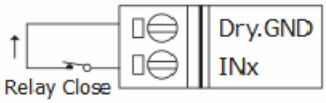
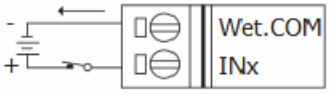
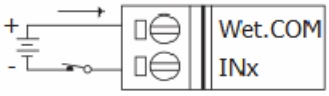
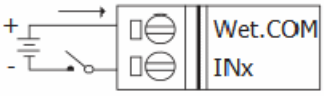
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2.4 Wire Connections

- ZT-2052-IOP

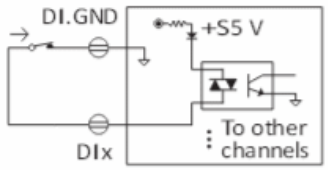
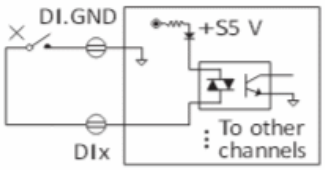
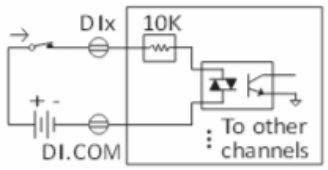
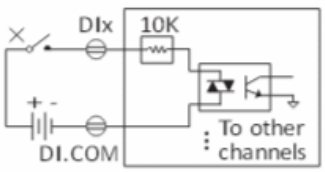
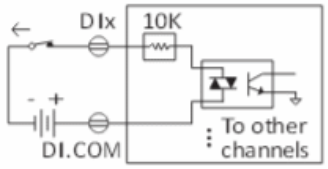
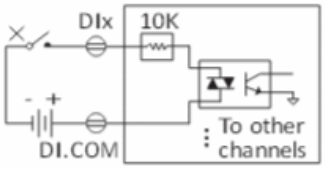
Input Type	ON State LED ON Readback as 1	OFF State LED OFF Readback as 0
TTL/ CMOS Logic	Voltage > 3.5V	Voltage < 1V
		
Relay Contact	Relay ON	Relay OFF
		
Open Collector	Open Collector ON	Open Collector OFF
		

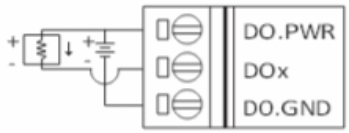
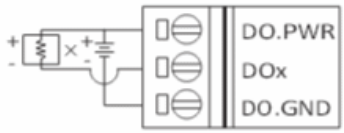
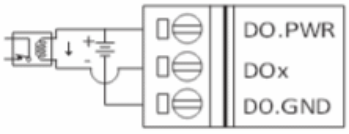
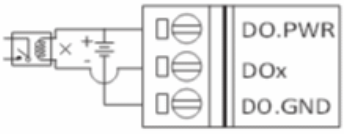
- ZT-2053-IOP

Input Type	ON State LED ON Readback as 1	OFF State LED OFF Readback as 0
Dry Contact	Relay ON	Relay OFF
		
Wet Contact (Source)	Voltage > 3.5V	Voltage < 1V
		
Wet Contact (Sink)	Open Collector ON	Open Collector OFF
		

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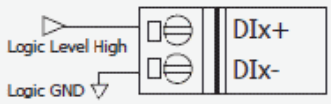
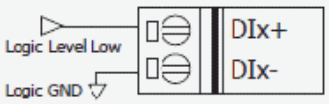
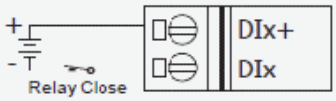
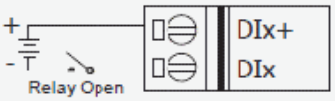
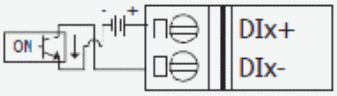
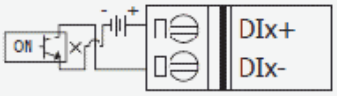
- ZT-2055-IOP

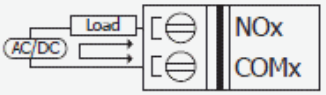
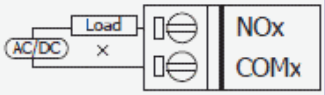
Input Type	ON State Readback as 1	OFF State Readback as 0
Dry Contact	Close to GND	Open
		
Wet Contact (Sink)	+10 ~ +50 VDC	+4 VDC Max.
		
Wet Contact (Source)	+10 ~ +50 VDC	+4 VDC Max.
		

Output Type	ON State Readback as 1	OFF State Readback as 0
Digital Output (Resistance Load)		
Digital Output (Inductive Load)		

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- ZT-2060-IOP

Input Type	ON State LED ON Readback as 1	OFF State LED OFF Readback as 0
TTL/ CMOS Logic	Voltage > 3.5V	Voltage < 1V
		
Relay Contact	Relay ON	Relay OFF
		
Open Collector	Open Collector ON	Open Collector OFF
		

Output Type	ON State LED ON Readback as 1	OFF State LED OFF Readback as 0
Relay Contact	Relay ON	Relay OFF
		

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3 Setting up the ZT-2000-IOP Series Device

3.1 An overview of the Configuration Parameters

A. Protocol/Application Mode:

When implementing custom programs based on different protocols, the following application mode(s) are recommended in order to ensure optimal communication performance.

User Program Protocol	ZT-2000-IOP	ZT-2000 I/O
DCON	DCON	DCON

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

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

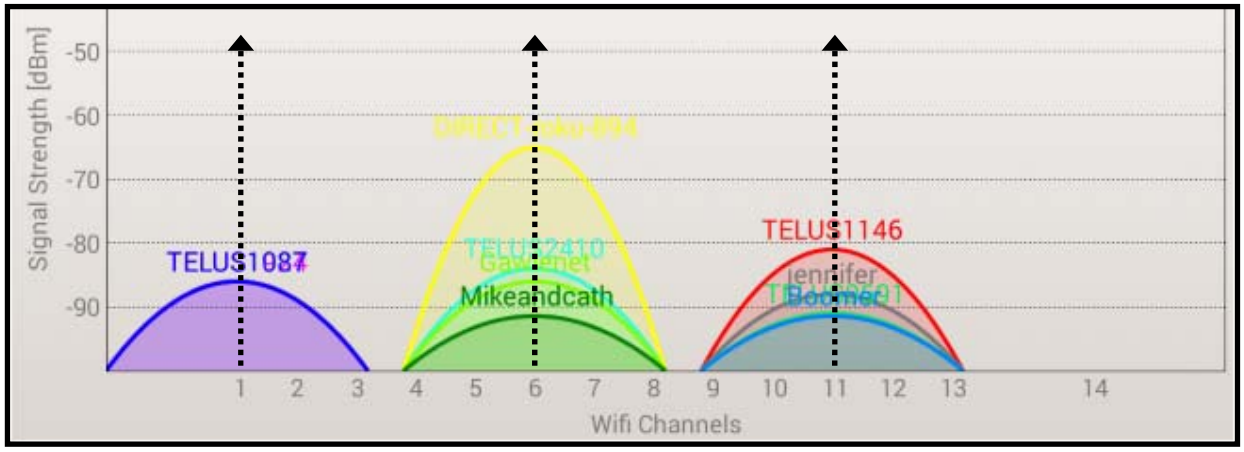
D. The **"RF Channel"** parameter indicates the radio frequency channel, and must be set to the same value as other modules on the same ZigBee network.

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

- The Method of Channel Selection：

Scan the channel of WLAN which have been occupied via some tools. For example, you can download the application of Wifi Analyzer in your Smartphone. It would help you to detect the wireless signal and analysis the WLAN.

As the below screenshot shown, there are several WLAN on the channel 1, 6 and 11. User can refer the below chart of Wifi and ZigBee to select the best channel. As the result we know the ZigBee channel 4, 9, E and F are not overlap with the WLAN, so it is recommended.



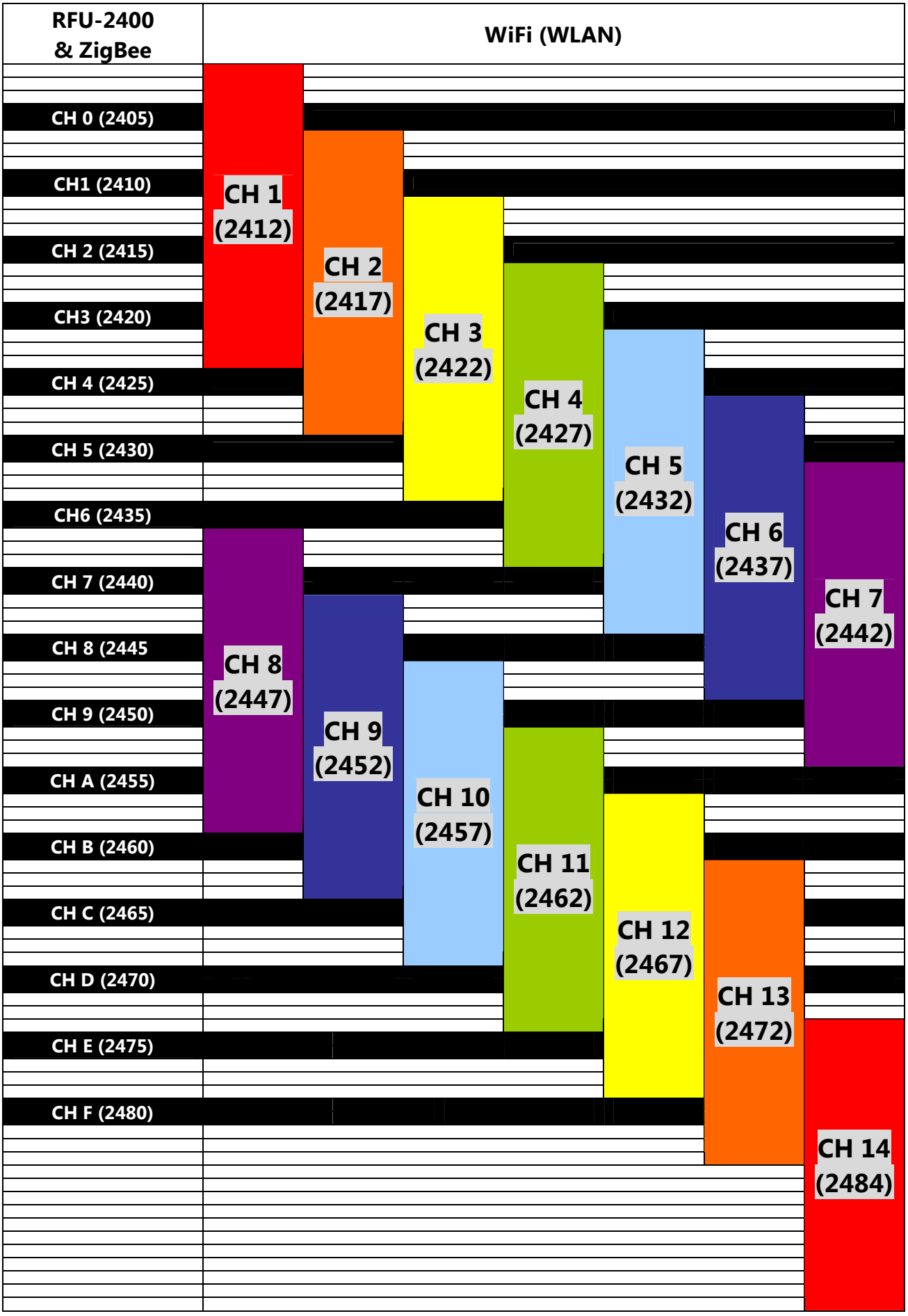


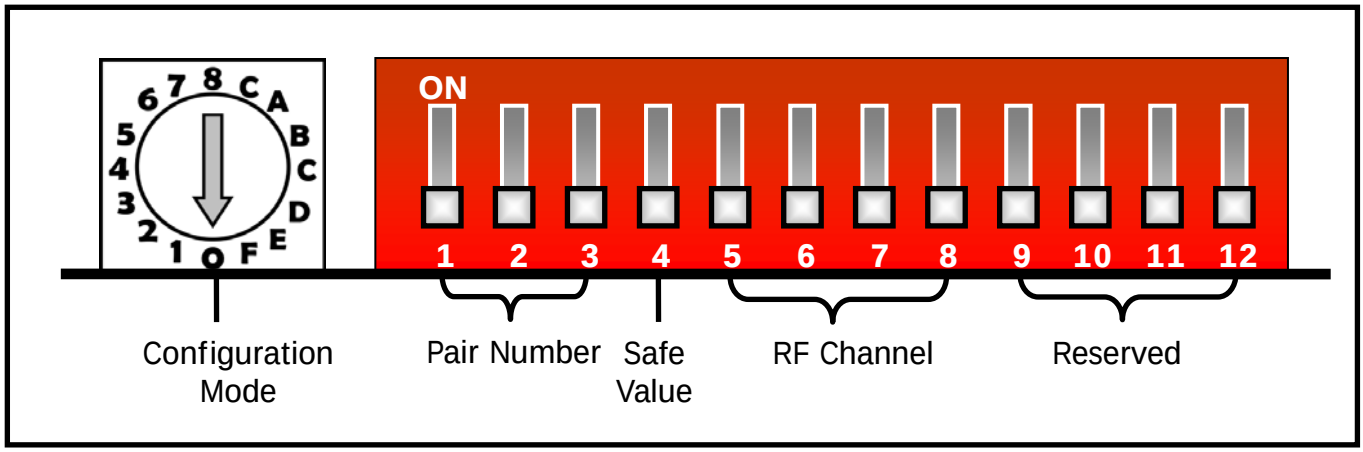
Chart of wireless channel to the RFU-2400/ZigBee(IEEE 802.15.4) and WLAN(IEEE 802.11b/g)

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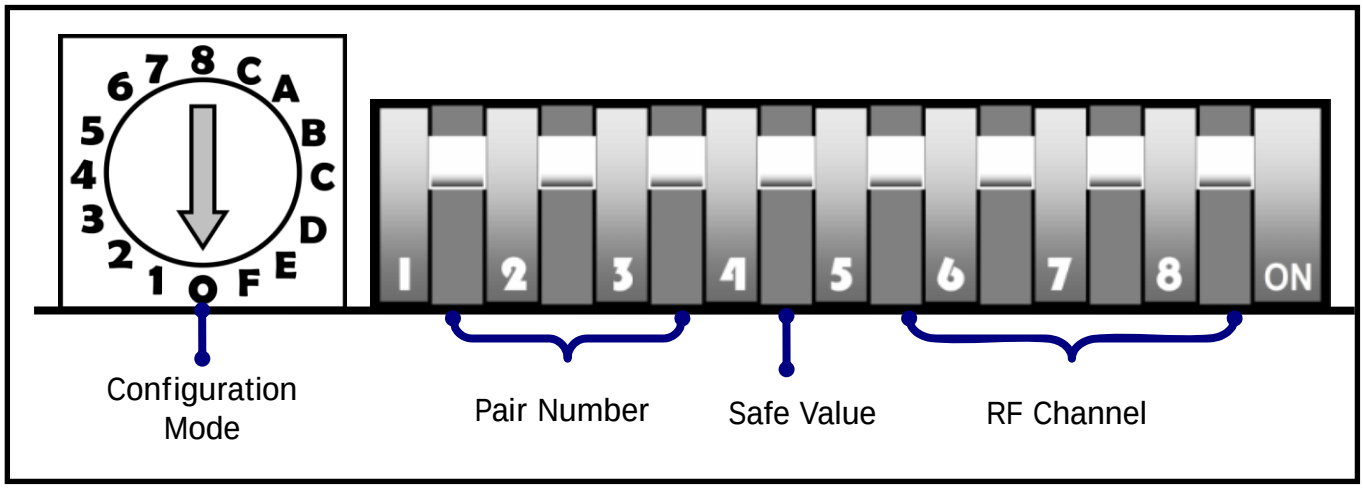
3.2 Introduction to the Rotary and DIP Switches

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

➢ Rotary and DIP Switches for ZT-2053-IOP and ZT-2055-IOP Modules



➢ Rotary and DIP Switches for ZT-2052-IOP and ZT-2060-IOP Modules



※ Refer to Section 3.3 Hardware Configuration for more details related to the definitions of the Rotary and DIP switches.

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Both the hardware and software configuration are supported on the ZT-20XX-IOP device. Basic functions, such as ZigBee settings and I/O pairing, etc., can be performed via hardware configuration. Other advanced functions, such as functions related to wireless encryption and Safe Values should be performed using software configuration. Refer to the description in the section below for more details.

3.3 Hardware Configuration

The Rotary and DIP switches should be adjusted based on the specific network requirements, as described below.

3.2.1 Rotary Switch

- ZT-20XX-IOP - Module Position

  a. On the ZT-20XX-IOP, if this switch is in the '0' position, it means that the I/O pair connection function is enabled.
  b. On the ZT-20XX-IOP, if this switch is **NOT** in the '0' position, it means that the software configuration function is available.

- ZT-20XX - LSB Address

  This switch is used to define the Device ID and the Node ID for the ZigBee network.

Module	Rotary Switch Value	Notes
ZT-20XX-IOP	0	RUN (Node ID=0x0000)
	1 - F	INIT (Software Configuration)
ZT-20XX	1 - F	The Rotary switch can be set to any position from '1' to 'F' depending on the number of I/O pairs

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3.2.2 DIP Switches

➢ ZT-20XX-IOP

- (DIP_1 ~ DIP_3) - Pair Number

These switches are used to define the **number of I/O pairs** in order to show a debug message via the LED indicators. Each ZT-20XX device is polled every 10 seconds via a unicast frame in order to check the **connection status**. See the "LED Indicators" section in the Appendix (Section 5) for more details.

- (DIP_4) – Safe value

This switch is used to enable the **watchdog** on the remote ZT-20XX device in order to initiate the Safe Value function.

	DIP 4	Note
ZT-2060-IOP	OFF (0x0000)	If the safe value function of the remote ZT-2060 is disabled
	ON (0x0001)	If the safe value function of the remote ZT-2060 is enabled

- (DIP_5 ~ DIP_8) – RF Channel

These switches are used to define the **RF channel** used for both the ZT-20XX-IOP and the ZT-20XX. Note that the values set for both devices **must be the same**.

	DIP 5	DIP 6	DIP 7	DIP 8	Notes
ZT-20XX-IOP ZT-20XX	0x08	0x04	0x02	0x01	Value
	OFF	*OFF*	*OFF*	*OFF*	0 (2405 MHz)
	OFF	*OFF*	*OFF*	**ON**	1 (2410 MHz)
	OFF	*OFF*	**ON**	*OFF*	2 (2415 MHz)
	OFF	*OFF*	**ON**	**ON**	3 (2420 MHz)
	OFF	**ON**	*OFF*	*OFF*	4 (2425 MHz)
	OFF	**ON**	*OFF*	**ON**	5 (2430 MHz)
	OFF	**ON**	**ON**	*OFF*	6 (2435 MHz)
	OFF	**ON**	**ON**	**ON**	7 (2440 MHz)
	ON	*OFF*	*OFF*	*OFF*	8 (2445 MHz)
	ON	*OFF*	*OFF*	**ON**	9 (2450 MHz)
	ON	*OFF*	**ON**	*OFF*	A (2455 MHz)
	ON	*OFF*	**ON**	**ON**	B (2460 MHz)
	ON	**ON**	*OFF*	*OFF*	C (2465 MHz)
	ON	**ON**	*OFF*	**ON**	D (2470 MHz)
	ON	**ON**	**ON**	*OFF*	E (2475 MHz)
	ON	**ON**	**ON**	**ON**	F (2480 MHz)
※Note that the value set for the RF channel **must be the same** on both devices.					

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➢ ZT-20XX

- (DIP_1) - MSB Address

This switch is used to define the MSB (Most Significant Bit) of the Device ID and the Node ID for the ZigBee network.

- (DIP_2 ~ DIP_3) – Protocol & Checksum

These switches are used to define the protocol and the checksum. For the ZT-20XX is paired with ZT-2000-IOP, both switches on the ZT-20XX should be fixed to the **'OFF'** position. Refer to the table below for more details relating to DIP Switches 1 to 3.

	DIP 1	DIP 2	DIP 3	Notes
ZT-20XX-IOP	Pairing Number			Connection Survival
	OFF	*OFF*	*OFF*	0 (check slave 0x01)
	OFF	*OFF*	**ON**	1 (check slave 0x01 – 0x02)
	OFF	**ON**	*OFF*	2 (check slave 0x01 – 0x03)
	OFF	**ON**	**ON**	3 (check slave 0x01 – 0x04)
	ON	*OFF*	*OFF*	4 (check slave 0x01 – 0x05)
	ON	*OFF*	**ON**	5 (check slave 0x01 – 0x06)
	ON	**ON**	*OFF*	6 (check slave 0x01 – 0x07)
	ON	**ON**	**ON**	7 (check slave 0x01 – 0x08)
ZT-20XX	MSB Address	Protocol	Checksum	
	OFF	OFF (DCON)	OFF	

- (DIP_4) – Pan ID

This switch is used to define the Pan ID for the ZigBee network.

	DIP Switch 4	Note
ZT-20XX	OFF (0x0000)	The Pan ID configuration is fixed to "0x0000"

- (DIP_5 ~ DIP_8) – RF Channel

These switches are used to define the **RF channel** used for both the ZT-20XX-IOP and the ZT-20XX. Note that the values set for both devices **must be the same**.

	DIP Switch 5	DIP Switch 6	DIP Switch 7	DIP Switch 8	Notes
ZT-20XX-IOP ZT-20XX	0x08	0x04	0x02	0x01	Value
	OFF	OFF	OFF	OFF	0 (2405 MHz)
	OFF	OFF	OFF	ON	1 (2410 MHz)
	……				……
	ON	ON	ON	ON	F (2480 MHz)
※Note that the value set for the RF channel **must be the same** on both devices.					

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3.4 Software Configuration

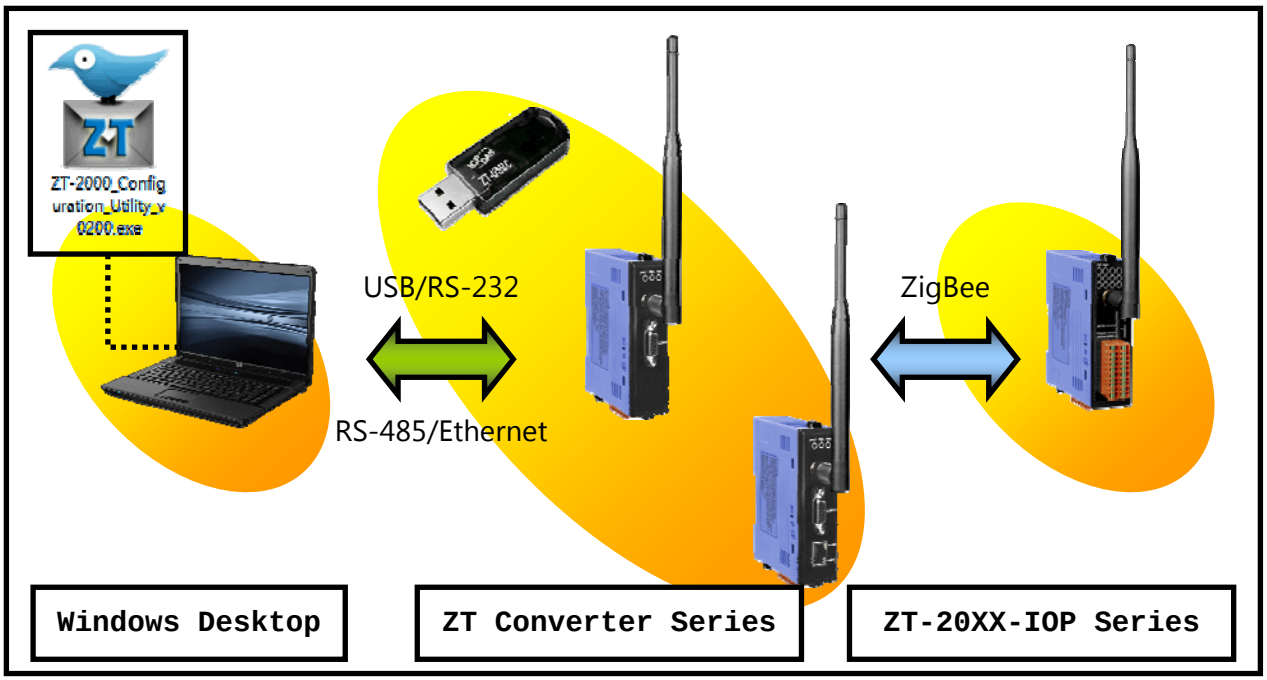
A number of advanced functions and configurations are available on ZT-20XX-IOP devices, including functions related to wireless encryption, Safe Values for the output channels, adjustable I/O pairings and the ability to modify remote devices that have a different number of I/O channels to be paired, etc.

3.2.1 Connecting to the ZT-20XX-IOP Device

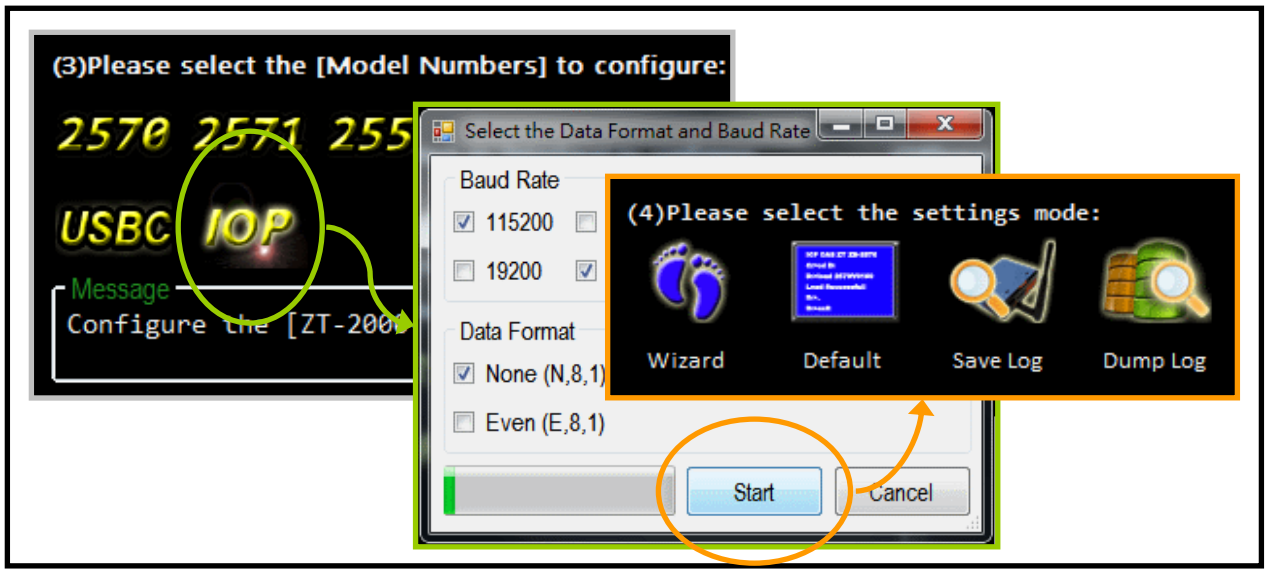
As the ZT-20XX-IOP device does not include a COM port, a ZigBee converter is required in order to perform remote software configuration for devices such as the ZT-USBC, ZT-255x or ZT-257x.

Use the following procedure to perform the software configuration.

1. Configure both the ZigBee converter and the ZT-20XX-IOP device to operate on the same ZigBee network.
2. Set the ZigBee converter to the RUN position and adjust the rotary switch on the ZT-20XX-IOP device to any non-zero position.
3. Reboot both devices and read the configuration of ZT-20XX-IOP using the ZT-2000_Configuration_Utility.



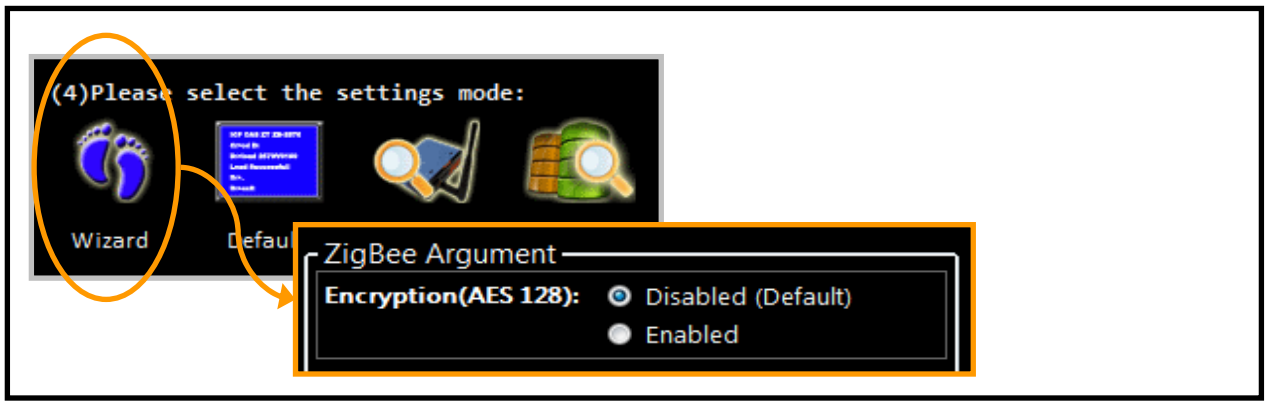
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3.2.2 Wireless Encryption

The ZT series also provides AES-128 encryption function for the wireless transmission. The status of the encryption function only needs to be configured in the ZT-20XX-IOP device (ZigBee coordinator), and then the status of encryption to the ZT-20XX device will be automatically synchronized.

Note that the encryption feature is only available on firmware version 2.1 or later. If there is any requirement for the encryption function, this should be specified when placing an order.



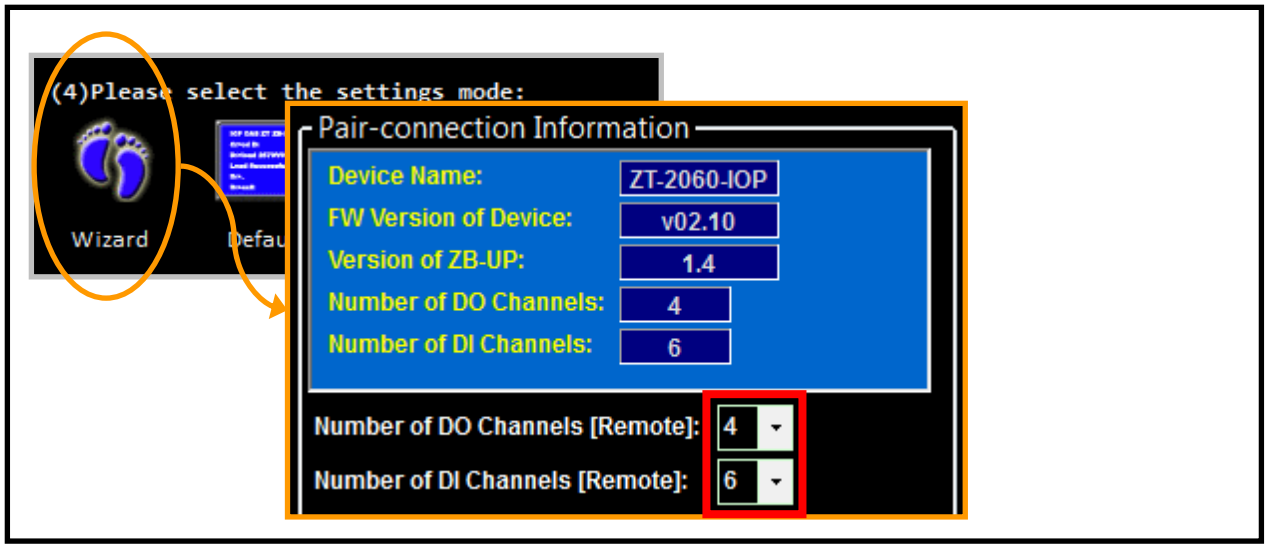
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3.2.3 Adjustable Remote Device

By default, device pairing is fixed to devices with the same number of I/O channels. The following is an overview of common ZT-20XX-IOP and ZT-20XX device pairings.

Number of I/O Pairs	Synchronization	ZT-20XX-IOP	ZT-20XX
4/4	Two-way	ZT-2060-IOP	ZT-2060
8	One-way	ZT-2052-IOP	ZT-2042
8/8	Two-way	ZT-2055-IOP	ZT-2055
14	One-way	ZT-2053-IOP	ZT-2043

Flexibility in device pairings for ZT-20XX-IOP devices can be achieved through software configuration. As shown in the following diagram, an appropriate value for the "Number of DI/DO channels [Remote]" should be selected so that it matches the correct number of DI/DO channels on the remote ZT-20XX device.



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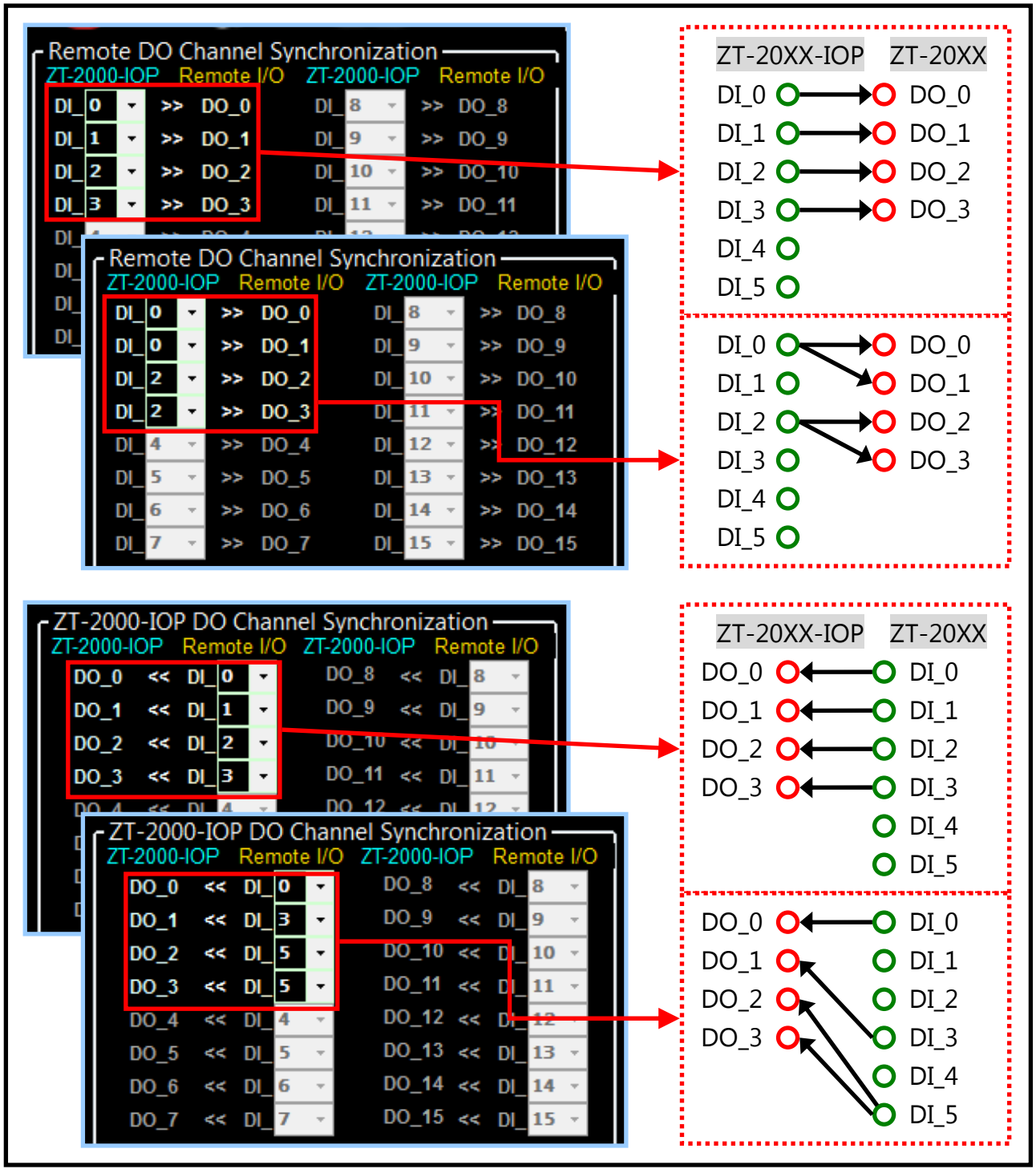
3.2.4 Adjustable I/O Channel Pairings

The default pairing for I/O channels is fixed to devices that have the same number of I/O channels. The following provides an overview of the DI/DO channel pairs.

ZT-20XX-IOP	→	ZT-20XX		ZT-20XX-IOP	←	ZT-20XX
DI_0	→	DO_0		DO_0	←	DI_0
DI_1	→	DO_1		DO_1	←	DI_1
.....				.....		
DI_N	→	DO_N		DO_N	←	DI_N

Flexibility in I/O channel pairings on ZT-20XX devices can be achieved through the software configuration, meaning that the digital output channels on a ZT-20XX device can be paired with other digital input channels on a ZT-20XX-IOP device. As shown in the following diagram, the relationship between I/O pairings is adjustable in ZT-20XX-IOP devices.

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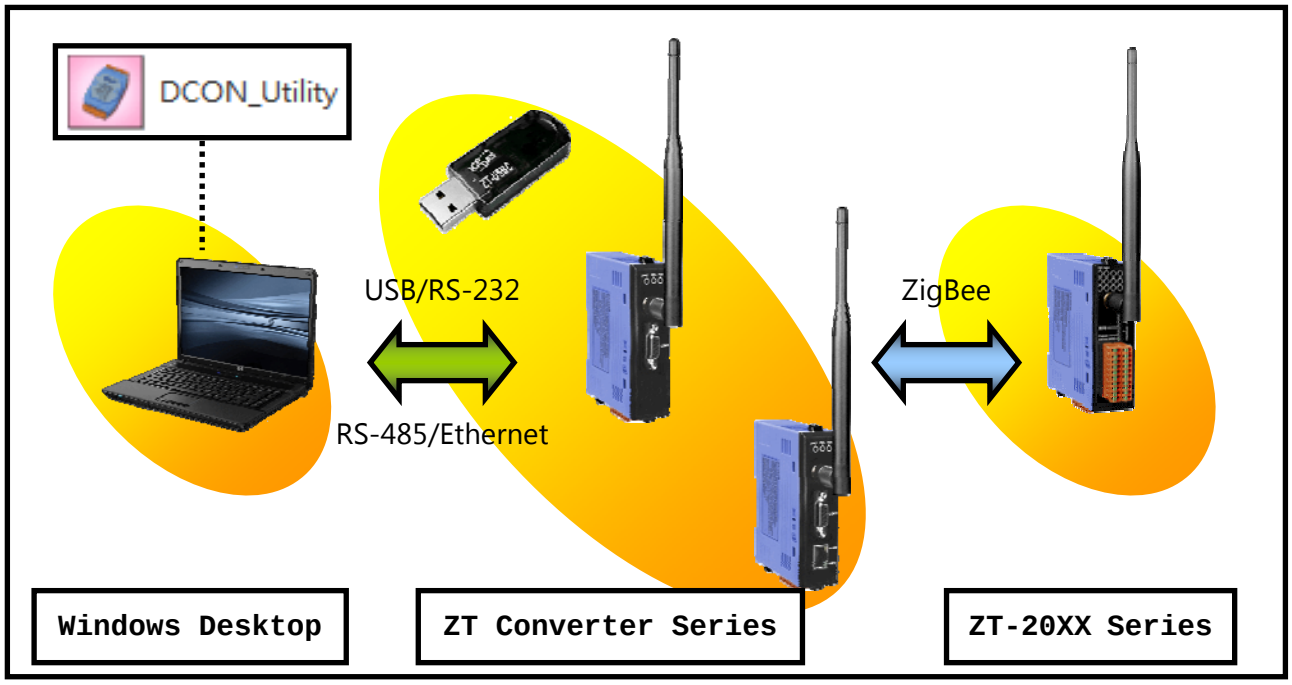


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3.2.5 Safe Value

A Safe Value function is available for ZT pair connection applications. After setting the DIP switch for the Safe Value on the ZT-20XX-IOP device to the ON position, the ZT-20XX-IOP device will begin continuously refreshing the watchdog on the remote ZT-20XX device.

However, the configuration related to the of Safe Value function on the ZT-20XX device still needs to be configured. This means that a ZigBee converter together with the DCON Utility are required in order to configure the both the watchdog timeout and the Safe Value for the output channel.

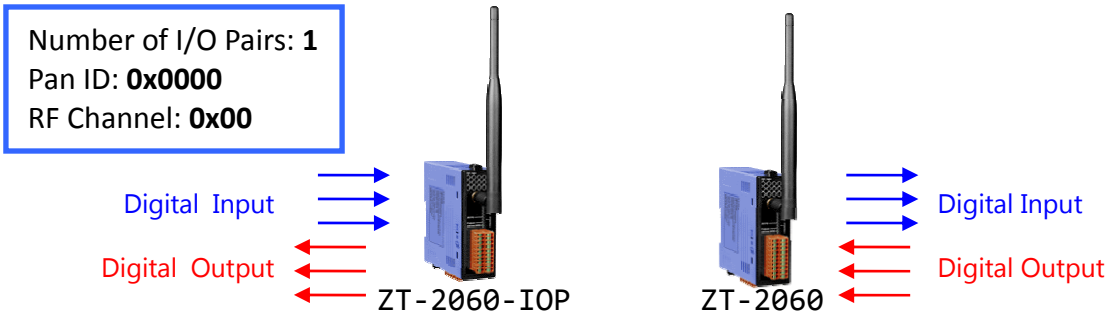


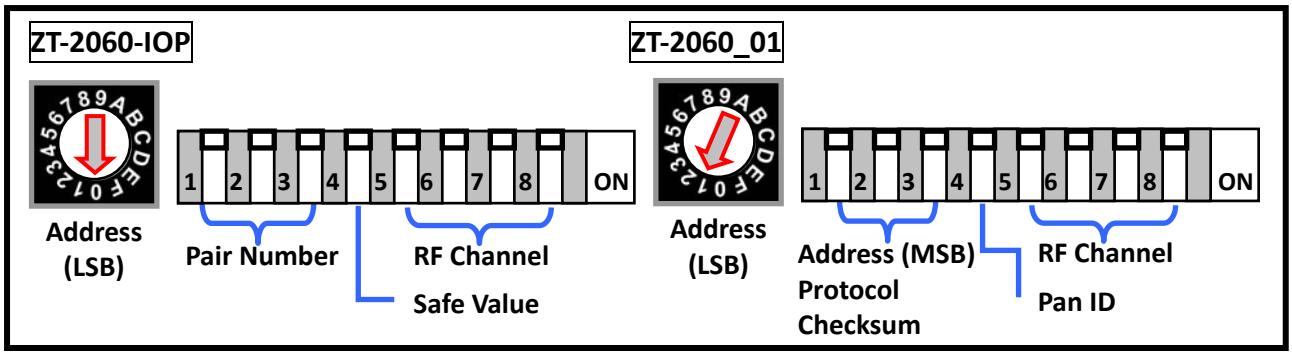
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4 Applications

➢ Example 1 (Default: One-to-One I/O Pair Connection)

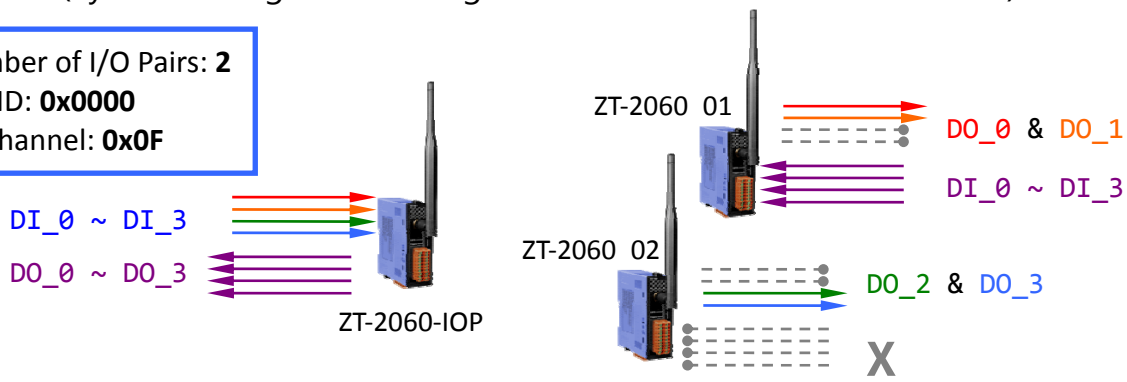
Number of I/O Pairs: **1**
Pan ID: **0x0000**
RF Channel: **0x00**

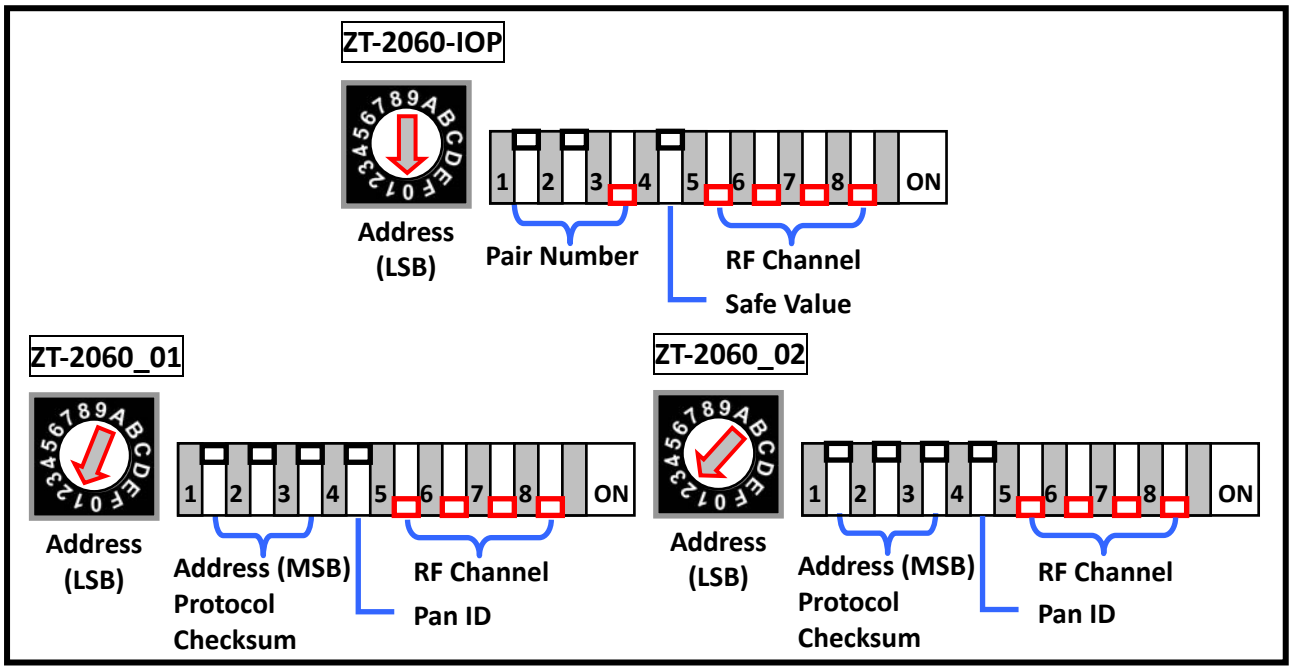




➢ Example 2 (Synchronizing different digital channels with different devices)

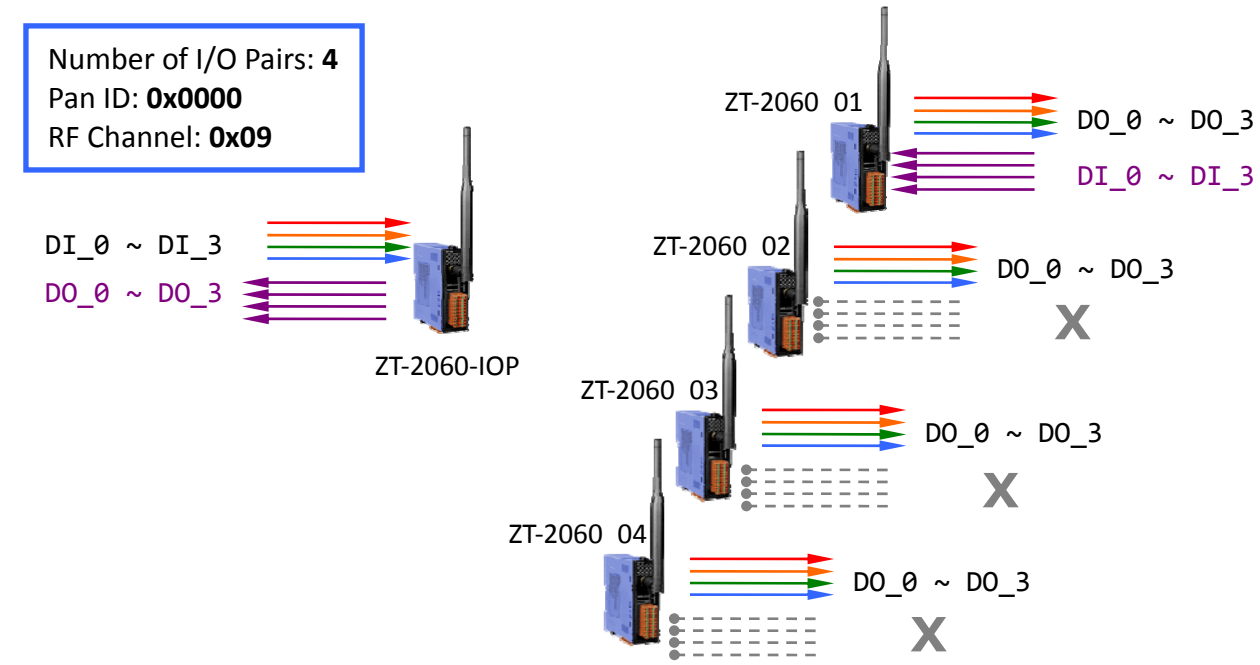
Number of I/O Pairs: **2**
Pan ID: **0x0000**
RF Channel: **0x0F**

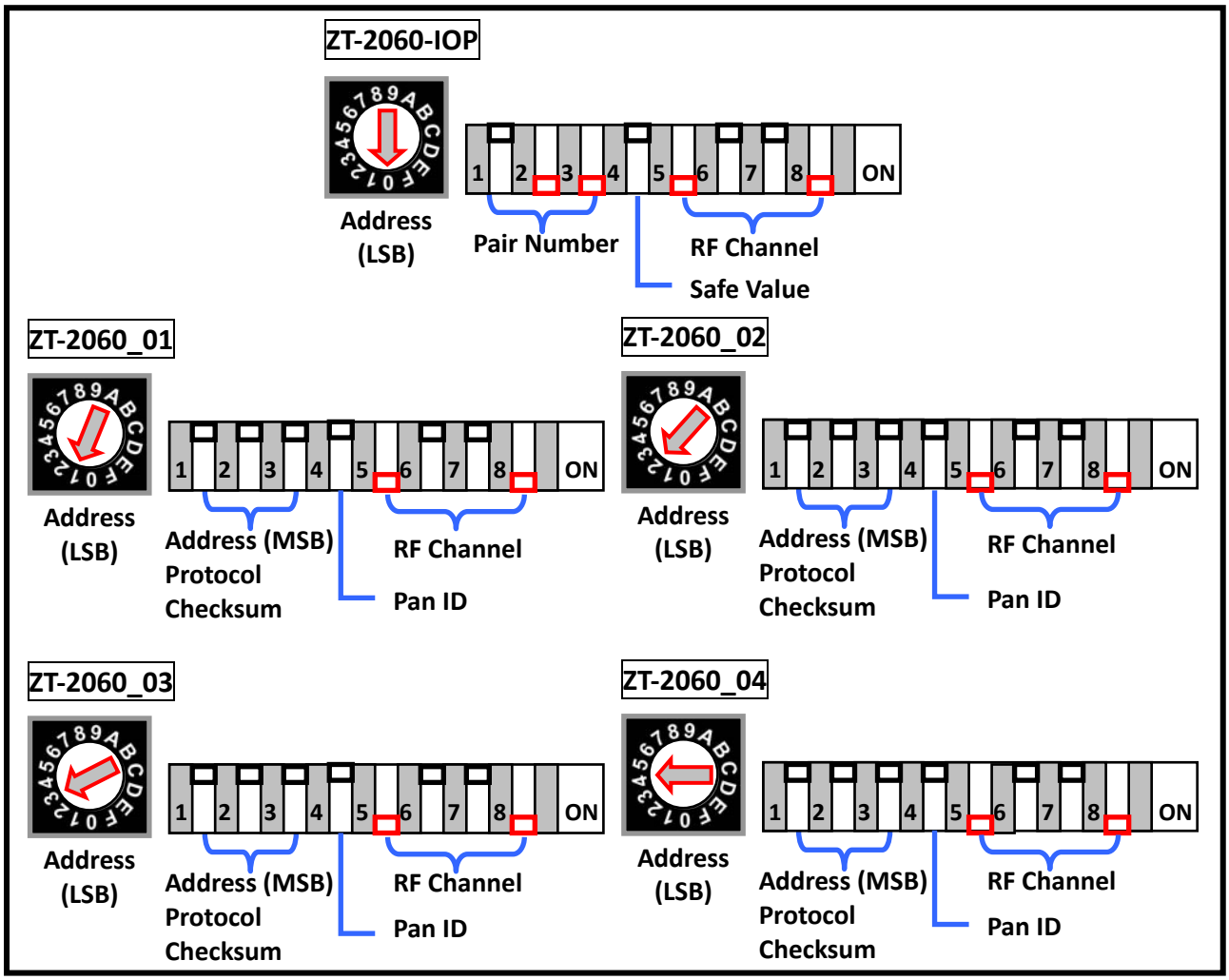




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➢ Example 3 (Synchronizing all the digital channels on different devices)





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5 Appendix

- LED Indicators

ZT-20XX-IOP	Status	Remarks
PWR	Steady Lit	ZigBee communication is functioning correctly
	Flashing Once	Communication to ZigBee slave 0x01 has been lost
	Flashing Twice	Communication to ZigBee slave 0x02 has been lost
	……	……
	Flashing Eight Times	Communication to ZigBee slave 0x08 has been lost
ZigBee	Steady Lit	A connection to the ZigBee network has been established
	Flashing to Steady Lit	Attempting to rejoin the ZigBee network, or the network is occupied
DI	ON/Off	The status of the DI channels
DO	ON/Off	The status of the DO channels

ZT-20XX	Status	Remarks
PWR	Steady Lit	The power is on
	Blinking (200 ms)	There was a Module Initialization failure
	Blinking (1 s)	The Host Watchdog is enabled
	Steady Unlit	The power is off
ZigBee	Steady Lit	The signal strength is high
	Blinking (500 ms)	The signal is available to be used
	Blinking (1 s)	The signal is weak
	Blinking (2 s)	The signal is poor or no ZigBee network is available.
DI/DO	Steady Lit	The DI/DO channel is enabled
	Steady Unlit	The DI/DO channel is disabled

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➢ Technical Service

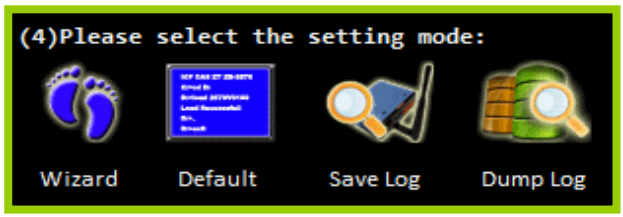
If you encounter any difficulties using your ZT-2000-IOP series device, send a description of the problem to service@icpdas.com.

Include the following items in your email:

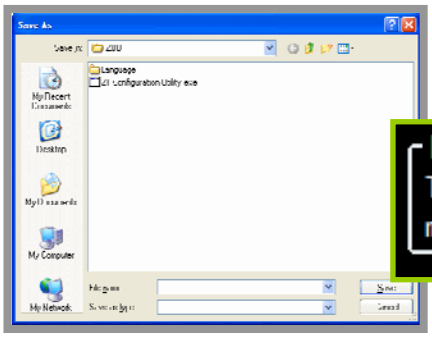
- *A description or diagram of the current DIP switch positions.*
- *A copy of the configuration file for the ZT-2000-IOP coordinator. This file can be obtained using the procedure outlined below and should be attached to your email.*

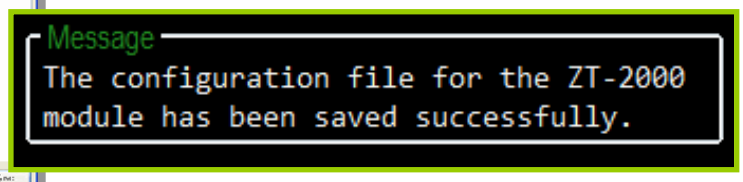
a. Set the DIP Switch on the ZT-2000-IOP series device to the [ZBSET] position then reboot the device. Launch the ZT Configuration Utility and click the [Save Log] icon to save the configuration for the ZT-20XX-IOP as a file.





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 "The configuration file for the ZT-2000 module has been saved successfully", as illustrated below.





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