ZIG2Serial

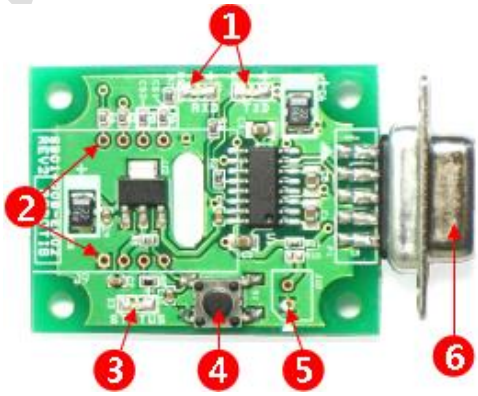
Part Photo

[Zig2Serial]

Product Usage

- Chaning the ID of ZIG-100 : the ID can be changed through RoboPlus Manager
- Serial communication with Bioloid through Zigbee communcation in PC
    - The program for PC must be created separately.
    - Communication test can be done with RoboPlus Manager.

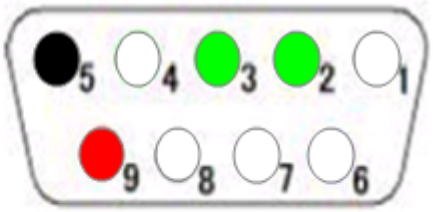
Name and Usage of Each Part



Name	Explanation
① Communication Status Display LED	If there is an outgoing signal through ZIG-100 in RS-232, TXD is turned on; if there is an incoming signal through ZIG-100, RXD is turned on.
② ZIG-100 Connector	It is to connect ZIG-100 to ZIG2Serial.
③ ZIG-100 Status Display LED	The status of ZIG-100 is displayed. ○ If it is turned off : ZIG-100 is not connected or in set status. ○ If it is turned on : It is connected to other ZIG-100 and thecommunication is ready. ○ If It flickers : Other ZIG-100 has not been found.
④ Reset Switch	It is used when ZIG-100 is rebooted.
⑤ Power Connector	The power of 5V is needed to operate ZIG2Serial. The user can supply power using this connector. If it is connected to USB2Dynamixel, a separate power supply is not necessary.
⑥ RS232 Connector	It can be connected to RS-232 port of PC.

Port Composition

[Zig2Serial Connector's PIN Figure]

Pin No.	Signal	Pin Figure
1	NC	
2	TXD [RS-232]	
3	RXD [RS-232]	
4	NC	
5	GND	
6	NC	
7	NC	
8	NC	
9	USB power [5V]	

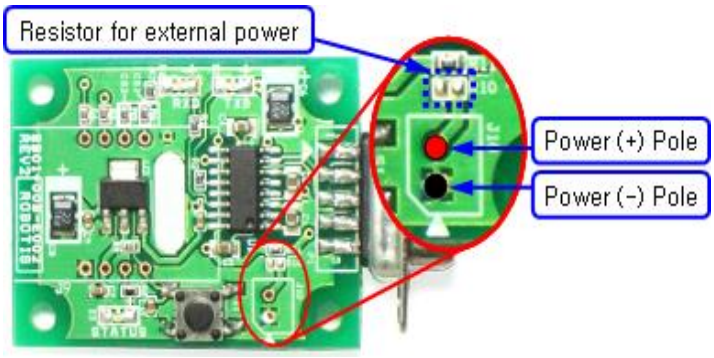
How to Use

Connecting to PC

There is RS-232 Connector for communication in PC; it is called serial port. RS-232 connector of ZIG2Serial can be connected here. If there is no serial port in PC, USB2Serial converter must be purchased

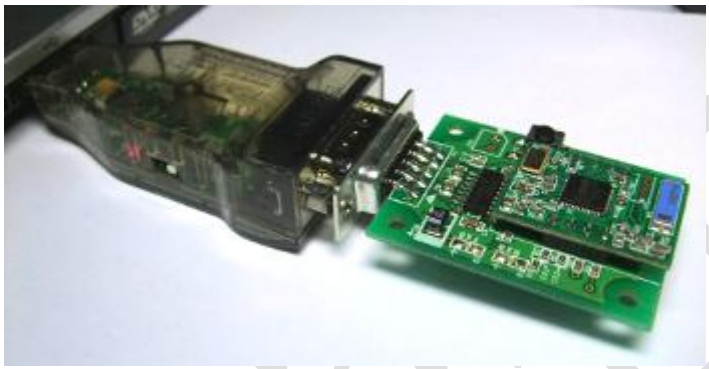
Supplying Power

The power of 5V mus be supplied to operate ZIG2Serial. The power can be supplied using the power connector of ZIG2Serial. The cable for power connection must be made referring to the pin arrangement as below.



Zero ohm resistor must be attached or **connected by soldering** on the location of **resistor for external power** to supply the external power.

If USB2Dynamixel products of Robotis are used, those products can be used without supplying separate power since the power is supplied from USB2Dynamixel to ZIG2Serial. However, **if the resistor for external power connection is connected, please use after removing the resistor!**



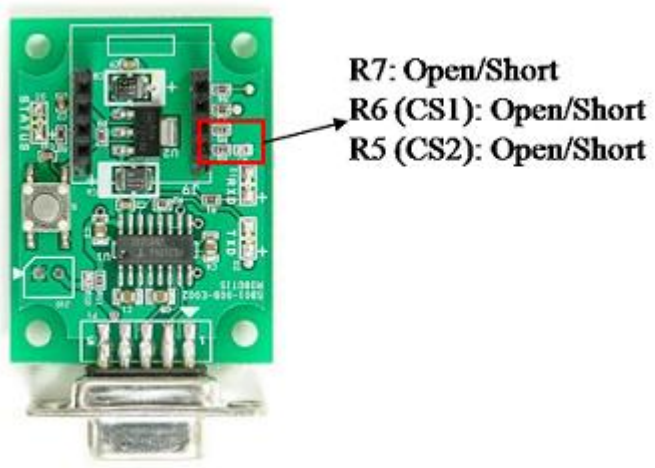
Connecting ZIG-100

Please be careful with the direction of ZIG-100 when it is connected.

Select Broadcast Channel

You can select the Broadcast channel on the ZIG-100 by using the CHANNEL_SEL 1,2 pins.

The connection status must be changed to select the channel on the Zig2Serial.



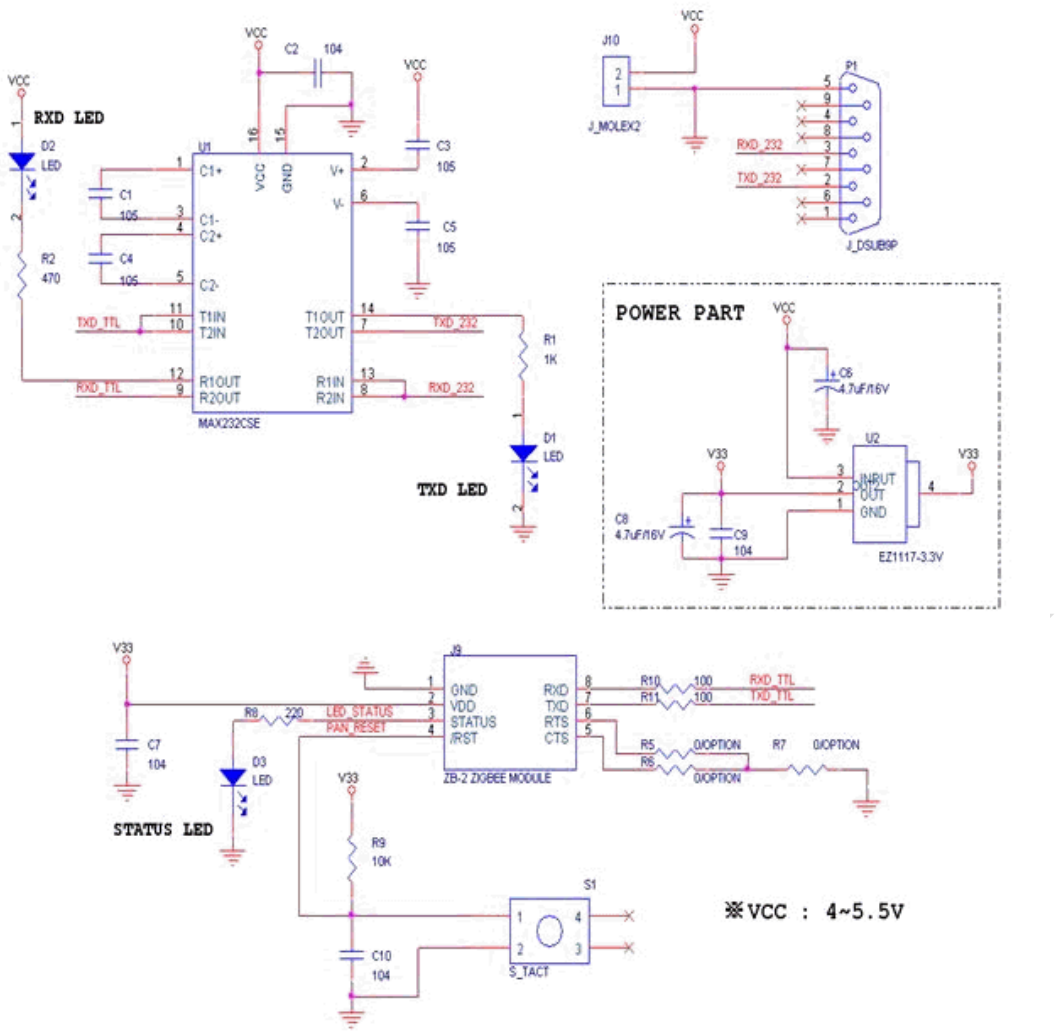
- Open is eliminating the lead which is not connected.
- Short is using the lead to connecting it.
- The resistance on the R5 and R6 is 0Ω. Thus you can eliminate or short the lead.
- The default setting of the Zig2Serial is set at channel #1 and R5, R6, and R7 are short. Easily select channel #1 and #4 by opening and shorting the lead on R7.

Precaution : When the ZIG-100 is mounted on the CM-5, the broadcast channel to set at #1. If the channel of the Zig2Serial is set differently, it will communicate with the CM-5 in broadcast communication mode

Channel	Connection Status of the Zig2Serial
1	R7 => Short R6 => Short R5 => Short
2	R7 => Short

	R6 => Open R5 => Short	
3	R7 => Short R6 => Short R5 => Open	
4	R7 => Short R6 => Open R5 => Open	R7 => Open R6 => Don't care R5 => Don't care

Circuit



Usage

RoboPlus Manager

- The set value of Zig-100 and Zig-110 can be set through RoboPlus Manager.

Zigbee SDK

Zigbee SDK is a standard programming library to develop S/W communicates with RoboPlus Task with RoboPlus Task code.

The characteristics of Zigbee SDK are as below.

- It has outstanding portability in each platform since written in C language.
- It is easy to perform platform porting since it is written in both platform independent and dependent sources.
- The interface is standardized; thus, the developed software can be used again even if the controller is different.

API Reference

Reference is explained based on C language calling method.

Device Control Method

- Functions to control the communication devices

zgb_initialize	zgb_terminate

zgb_initialize

It initializes the communication devices and makes ready status.

```
int zgb_initialize(

    int devIndex ,
```

```
);
```

Parameters

- **devIndex**

  It is the number of currently connected communication devices. (It may vary depending on each platform.)

  For example, Windows distinguishes devices by COM port.

Return Values

- If the value is 1, it means success; if the value is 0, it means failure.

Example

It shows how to initialize in Windows environment using COM3 port.

```
#define DEFAULT_PORTNUM 3    // COM3

int result;
result =   dxl_initialize( DEFAULT_PORTNUM);

if( result == 1)
 {
   // Succeed to open Zig2Serial
      }
```

```
else if( result == 0 )
  {
        // Failed to open Zig2Serial
    }
```

zgb_terminate

It terminates the communication devices.

```
void zgb_terminate();
```

Parameters

- None

Return Values

- None

Example

```
zgb_terminate();
```

Communication Method

- Functions to transmit and receive the packet

zgb_tx_data	zgb_rx_check
zgb_rx_data	

Set/Get Packet Method

- Functions to make and see the packet

dxl_set_txpacket_id	dxl_get_rxpacket_error
dxl_set_txpacket_instruction	dxl_get_rxpacket_length
dxl_set_txpacket_parameter	dxl_get_rxpacket_parameter
dxl_set_txpacket_length	dxl_makeword
dxl_get_lowbyte	dxl_get_highbyte

Packet Communication Method

- Functions to transmit and receive the packet

dxl_tx_packet	dxl_rx_packet
dxl_txrx_packet	dxl_get_result

High Communication Method

- Functions to functionalize frequently-used packets for the convenience of users

dxl_ping	dxl_read_byte
dxl_write_byte	dxl_read_word
dxl_write_word	

Utility Method

- Other useful functions

dxl_makeword	dxl_get_highbyte
dxl_get_lowbyte	

H/W Specification

- Weight : 11.12g
- Dimension : 56mm * 34mm* 12mm
- Voltage : 4.5V ~ 5.5V
- Basic Communication Speed : 57600bps