MY-ZB010C UART to ZigBee Module

The MY-ZB010C is an industrial UART to ZigBee module designed by MYIR for applications which require low cost, low power, high reliability and far distance wireless communication network. It is a ZigBee/IEEE 802.15.4 compliant solution operating within the 2.4GHz ISM band. The module offers AT command line to configure parameters and implement point-to-point, peer-to-peer, point-to-multipoint, and mesh network topologies. It also has fixed time AD acquisition, IO acquisition, IO level pass-through control, PWM output and more other functions to make it an ideal communication module for applied fields like smart home, smart energy, remote monitoring, medical monitoring, warehouse environment monitoring and building automation.

The MY-ZB010C UART to ZigBee Module is available in two models: MY-ZB010C-S and MY-ZB010C-P. The MY-ZB010C-S is a standard power module with 2.5dBm transmitting power, -95dBm receiving sensitivity and integral antenna. The MY-ZB010C-P is a high power module with 22dBm transmitting power, -100dBm receiving sensitivity and UFL antenna interface. User can make selection according to their application requirements.
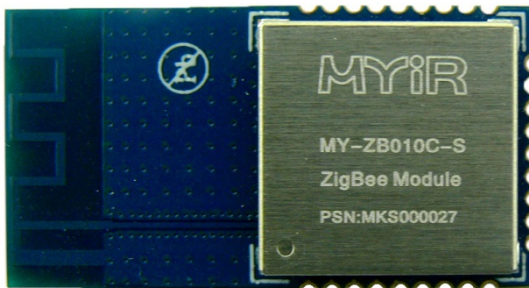

Figure 1-1 MY-ZB010C-S ZigBee Module   *Figure 1-2 MY-ZB010C-P ZigBee Module*

The MY-ZB010C ZigBee module is small in size and easily for customers to embed it into their products to add powerful network capabilities. MYIR also offers ZigBee module custom design services covering below contents:

- Transmit the ZigBee module connected data to data center in a special format.
- When the ZigBee module has received the specific data, to perform certain actions such as IO control, PWM output, etc.
- If the customer requires more perfect and powerful functions, we can customize your project according to your requirement. MYIR has much experience on ZigBee development which will help customers with complete solution.

Applications

ZigBee is a specification for a suite of high-level communication protocols used to create personal area networks built from small, low-power digital radios. The MY-ZB010C ZigBee Module can be used in various applications as listed below.

Building Automation	Smart Energy	Telecom Service / Network Devices
Health Care	Home Automation	Input Devices
Optical Link	Remote Control	Retail Services

Features

- Small form factor with 30mm (L) x 16mm (W) x 3mm (H) PCB dimensions
- Stamp hole interface for board-to-board connections (27-pins)
- Industrial working temperature: -40°C to +85°C.
- Wide supply voltage range: 2.1V to 3.6V
- Low cost, low power and high reliability network
- Two antenna options:
  On-board integrated antenna for MY-ZB010C-S
  Hirose U.FL coaxial connector external antenna for MY-ZB010C-P
- ZigBee/IEEE 802.15.4 compatible network solution
- 2.4GHz ISM band for using globally
- 16 channels (802.15.4 Channel 11-26)
- Supports point-to-point, peer-to-peer, point-to-multipoint, and mesh network topologies
- TTL UART interface (can be used with only VCC, GNC, TXD and RXD four signals)
- Rich peripherals with 4 x AD, 5 x IO, 3 x PWM
- Watchdog design to ensure the stability of the system
- Ready-to-use out-of-the-box and AT commands are offered for control and configuration

Specification

Item	MY-ZB010C-S	MY-ZB010C-P
Network Protocol	IEEE 802.15.4 ZigBee Pro (ZigBee 2007)	
Frequency Channel	ISM 2.4GHz band, Channel 11-26	
Network Topologies	Peer-to-peer, point-to-multipoint, Mesh	
Over-the-air data rate	250Kbps	
Actual usable data rate	29.6Kbps	
Transmit Power	2.5dBm	22dBm
Receiver Sensitivity	-95dBm	-100dBm
Antenna	Integral antenna	uFl connector
UART Interface	Baud rate: 4800, 9600, 19200, 38400, 76800, 115200 Data bit: 5, 6, 7, 8 Parity bit: none, odd, even Stop bit: 1, 2 Flow control: none, hardware Voltage: 3.3V, TTL	
Footprint	Stamp hole	
Recommended voltage	DC 3.3V	
Operating voltage	2.0V ~ 3.6V	
Current	Operating Current (Transmit)	15.3mA	175mA
	Operating Current (Receive)	17mA	22mA
	Power-down Current	8mA	10mA
AD	Accuracy	10 bit	
	Reference voltage	DC 2.47V	
	Input voltage range	0V ~ 2.47V	
PWM	Output Maximum Frequency	10KHz	
	Output Minimum Frequency	5Hz	
Temperature	Operating Temp.	-40°C to +85°C.	
	Storage Temp.	-40°C to +125°C.	
	Soldering Temp.	280°C to +320°C.	
Dimensions	30mm (L) x 16mm (W) x 3mm (W)	
Weight	About 3g	

Table 1-1 Specification of MY-ZB010C
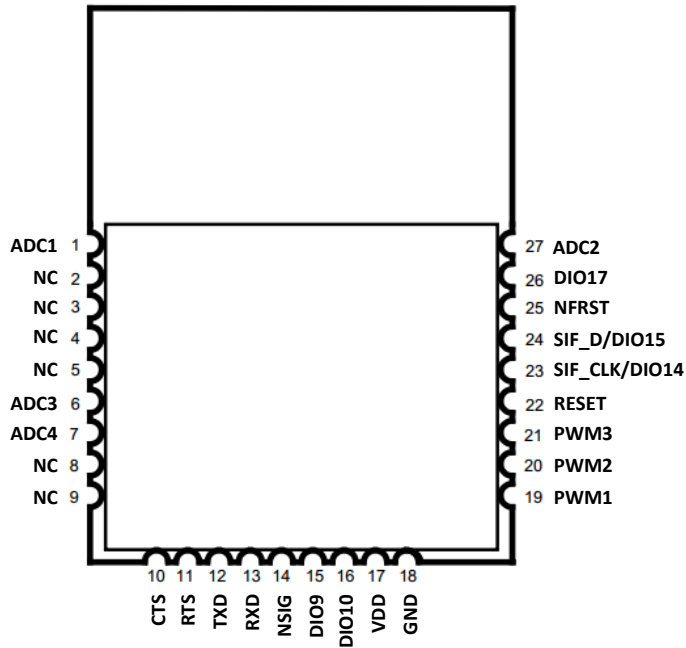
Pinouts of MY-ZB010C

Figure 1-3 Pinouts of MY-ZB010C

Below table gives instructions of each pins of the MY-ZB010C module. The characters in Input/Output column indicate words as below:

A – Analog, D – Digital, I – Input, O – Output, PWR – Power

For example, AI means Analog Input

No.	Name	Input/Output	Description	Remark
1	ADC1	AI	ADC Input channel 1	[1]
2	NC	-	Not used, keep dangling	
3	NC	-	Pin for getting into download mode, must be pulled up	
4	NC	-	Not used, keep dangling	
5	NC	-	Not used, keep dangling	
6	ADC3	AI	ADC Input channel 3	[1]
7	ADC4	AI	ADC Input channel 4	[1]
8	NC	-	Pin for high power module, must be dangling	
9	NC	-	Pin for high power module, must be dangling	
10	CTS	DI	CTS of UART	[2]
11	RTS	DO	RTS of UART	[2]
12	TXD	DO	Output of UART	
13	RXD	DI	Input of UART	
14	NSIG	DO	Network status signals output	[3]
15	DIO9	DIO	GPIO	

No.	Name	Input/Output	Description	Remark
16	DIO10	DIO	GPIO	
17	VCC	PWR	Power Input	
18	GND	PWR	Power GND	
19	PWM1	DO	PWM output channel 1	
20	PWM2	DO	PWM output channel 2	
21	PWM3	DO	PWM output channel 3	
22	RESET	DI	Active-low reset output signal	
23	SIF_CLK/DIO14	DIO	I2C clock signal/GPIO	The default is DIO14
24	SIF_D/DIO15	DIO	I2C data signal/GPIO	The default is DIO15
25	DIO16	DIO	Resume to default setting, keep low **5 / 6**level valid in 3s	
26	DIO17	DIO	General Input/Output	
27	ADC2	AI	ADC input channel 2	[1]

Table 1-2 Description of MY-ZB010C Pinouts

Note:

[1] Analog input, we suggest it should be isolated with digital circuit, the maximum input voltage cannot go over 2.47V.

[2] Active-low when enabling hardware flow control. If you don't use hardware flow control, it is suggested pull-down.

[3] Network status signal output, when running regularly, the output signals are: 1760ms low, 80ms high, 80ms low, 80ms high, shown as in below Figure 1-4:
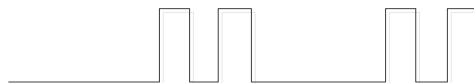

Figure 1-4

When the module has not connected with network, the output signals are 1000ms low, 1000ms high, shown as in below Figure 1-5:

Figure 1-5

Order Information

Product Item	Part No.
MY-ZB010C-S UART to ZigBee Module	MY-ZB010C-S
MY-ZB010C-P UART to ZigBee Module	MY-ZB010C-P

MYIR Tech Limited

Room 1306, Wensheng Center, Wenjin Plaza, North Wenjin Road, Luohu District, Shenzhen, China 518020

E-mail: sales@myirtech.com

Phone: +86-755-22984836

Fax: +86-755-25532724

Website: http://www.myirtech.com