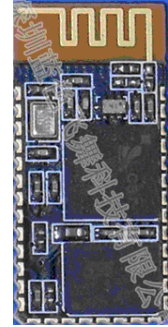


# Bluetooth Module BF10-A



## 1. Product Outlines:

The specification is suitable for BF10-A Bluetooth communication Module. It's an intelligent wireless data-transmission product which is developed by shenzhen BlueFive Tech.

It's very convenient **for customers** to use AT command to modify the parameters Support:

Various of baud rate, such as 1200bps~2764800bps,etc  
baud rate, Bluetooth name, class of device and PIN codes.

Support the master/slave mode, flexible in different areas.

**BF10 (RoHS)**

SPP Bluetooth serial service, very convenient to connect cell phone and PC, etc.

Bluetooth Specification V2.0+EDR compliant

Please refer to the Bluetooth module BF10 manual for the detailed parameters.

## 2. Application areas:

The module is mainly used for the wireless data-transmission in short-distance.

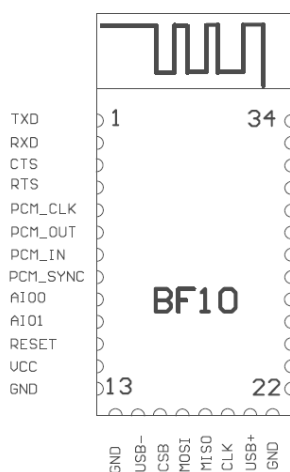
It's very convenient to connect with the Bluetooth device of PC(PDA cell phone) and to transmit data between the two modules.

It could replace the existing serial port line directly without complex cables connection.

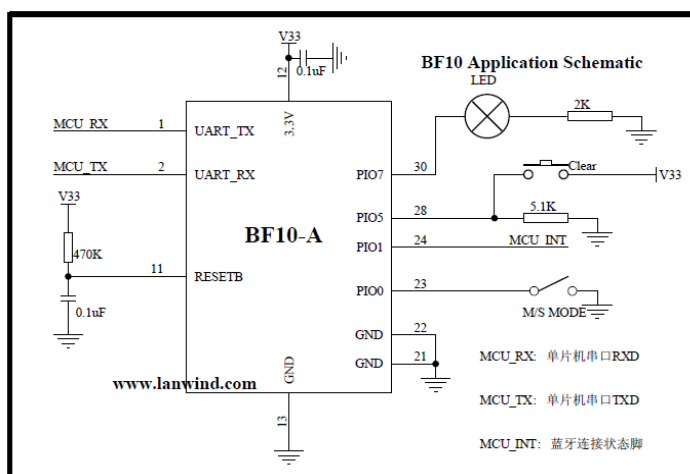
- ※ Printer, scanning device;
- ※ RS422/485 Network
- ※ Cable replacement
- ※ Industrial & telemeter;
- ※ Traffic & alarm;
- ※ POS & Bank system;
- ※ Data acquisition system,
- ※ wireless meter reading
- ※ automation & monitor
- ※ control for house and industry;
- ※ Car checkout equipment;
- ※ Voting equipment in the TV interactive programmes;
- ※ LED display screen system

**Contact us for more applications !**

### 3. Module description and application schematic:



BF10 Pin diagram



BF10-A Application circuit diagram

#### Outer description:

Power supply: 3.3V

RESET: reset when low level, 10 ms pulse.

PIO0: mode setup, master mode when high-level, slave mode when low.

PIO1: connect state pin, connected with PIO1 High

PIO7: connect LED pin

Master mode: flash slowly when unconnect, high when connected

Slave mode: flash quickly when unconnect, high when connected

PIO5: Clear the paired device's address when high-level

UART\_TX: BF10-A's uart data TXD Pin, connect the RXD of MCU

UART\_RX: BF10-A's uart data RXD Pin, connect the TXD of MCU

### 4. Operating mode:

#### Operating procedure for the master mode

- Connect the corresponding Bluetooth device if there is paired address. (turn to 2 for the model of no memory.)
- If there is no paired address, please scan the Bluetooth device around by the module. (with the same device type code)
- connect after finding Bluetooth device. (Input the pin code)

- d. Open the serial port after successful connection, It shows successful connection with the high level PIO1, PIO7, etc. The serial port data is ok for the full-duplex communication.

### Operating procedure of slave mode

- Wait for the master module to connect.
- Checkout the Pin code whether right or not.
- After successful connection, set high of PIO1, PIO7. The serial port data is ok for the full-duplex communication.

## 5. AT command operation directions:

The initial communication baud rate is 9600, N,8,1 use AT command to set Bluetooth name, Pin Code and communication baud rate. The PC serial port tool or the single chip could be used to operate.

AT command packet form:

Start code	Command code	Length	Parameter
AT+	e.g.: NAM	XX	XXXX
3 byte		2 byte	n byte

Return the state packet form:

State	Length	Content
OK or ERR	XX	XXXX
	2 byte	n byte

Successful Operation ----OK+ data length+ date content

Failed Operation ----ERR+ data length +date content

Name	Discription
Modify Bluetooth name	Start code: AT+ Command code: NAM Parameter length: 2 byte, e.g.: 04 shows there is 4 byte in the after Bluetooth name data Parameter content: 31 byte max

	<p>Return : Ok00 or ERR00</p> <p>E.G.: send 'AT+NAM06BF10-1' to modify AT to BF10-1</p>														
Modify PIN code	<p>Start code: AT+</p> <p>Command code: PIN</p> <p>Parameter length: 2 byte, the parameter length for the command is fixed as 04</p> <p>Parameter direction: xxxx It's the Pin Code after modification.</p> <p>Return : Ok00</p> <p>E.G.: send 'AT+PIN044321' to modify Pin Code to 4321</p>														
Modify baud rate	<p>Start code: AT+</p> <p>Command code: BDR</p> <p>Parameter length: 2 byte, the parameter length for the command is fixed as 01</p> <p>Parameter direction: x shows to set corresponding baud rate, as following:</p> <table style="margin-left: 40px;"> <tr> <td>1-----1200</td> <td>2-----2400</td> </tr> <tr> <td>3-----4800</td> <td>4-----9600</td> </tr> <tr> <td>5-----19200</td> <td>6-----38400</td> </tr> <tr> <td>7-----57600</td> <td>8-----115200</td> </tr> <tr> <td>9-----230400</td> <td>A-----460800</td> </tr> <tr> <td>B-----921600</td> <td>C-----1382400</td> </tr> <tr> <td>D-----1843200</td> <td>E-----2764800</td> </tr> </table> <p>Return : Ok00 or ERR00</p> <p>E.g.: Send AT+BDR018 to set baud rate as 115200.</p>	1-----1200	2-----2400	3-----4800	4-----9600	5-----19200	6-----38400	7-----57600	8-----115200	9-----230400	A-----460800	B-----921600	C-----1382400	D-----1843200	E-----2764800
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7-----57600	8-----115200														
9-----230400	A-----460800														
B-----921600	C-----1382400														
D-----1843200	E-----2764800														
Modify class of device	<p>Start code: AT+</p> <p>Command code: COD</p> <p>Parameter length: 2 byte, the parameter length for the command is fixed as 08</p> <p>Parameter direction: xxxxxxxx shows 8 byte class of device, e.g. 00024002</p>														

	<p>Return : Ok00 or ERR00</p> <p>E.G: Send AT+COD0800001F10 to modify the class of device to 0x00001f10</p>
Acquire the version code	<p>Start code: AT+</p> <p>Command code: VAR</p> <p>Parameter length: 2 byte, the parameter length for the command is fixed as 00</p> <p>Parameter direction:no</p> <p>E.G: AT+VAR00</p> <p>Return : OK30BF10-A Var2.1(<a href="http://www.lanwind.com">www.lanwind.com</a>)</p>
Set Remember Bluetooth paired device	<p>Start code: AT+</p> <p>Command code: REM</p> <p>Parameter length: 2 byte, the parameter length for the command is fixed as 01</p> <p>Parameter direction: x=1,as the master mode,remember the paired address</p> <p>X=0, as the master mode,do not remember the paired address</p> <p>Return : Ok00 or ERR00</p> <p>E.G: send AT+REM011</p>
Clear paired Bluetooth address	<p>Start code: AT+</p> <p>Command code: CLR</p> <p>Parameter length: 2 byte, the parameter length for the command is fixed as 00</p> <p>Parameter direction:no</p> <p>Return : Ok00 or ERR00</p> <p>E.G: send AT+CLR00</p>

PS: 1. Set the parameter before the successful connection and partnership, the serial port baud rate should be the same with the module baud rate.

2. It's better to reset the module after set the parameter.

## 6. Application case:

### 1. Connect the PC Bluetooth as slave mode

- a. Connect PIO0 to ground, reset or power on the Bluetooth module BF10-A
- b. The PC Bluetooth find the BF10-A, connect the BF10-A and input the Pin Code.
- c. It's successfully connected when the PIO1 is high level.
- d. There will be a virtual com port on the PC when it's successfully connected.
- e. Open the corresponding com port, it forms a transparent serial port line transmission

The application could replace the serial port line or USB line of PC and other equipments and it's used in printer, bar code gun, card reader, vehicle inspection and test, display screen, electronic scale, sphygmomanometer, etc.

### 2. Connect the Bluetooth of cell phone as slave mode

- a. Connect PIO0 to ground, reset or power on the Bluetooth module BF10-A
- b. The Bluetooth find the BF10-A , connect the modules and input the Pin Code.
- c. It's successfully connected when the PIO1 is high level
- d. There will be a virtual com port on the cell phone when it's successfully connected.
- e. Open the corresponding com port, it forms a transparent serial port line transmission.

PS: The Bluetooth of the cell phone support SPP serial service and there is serial port tool to test the data transmission. Generally, the intelligent cell phone with Windows mobile system support.

The application include the handheld printer, bar code gun, card reader, vehicle inspection and test, display screen, wireless meter reading, etc.

### 3. Connect PC Bluetooth (cell phone Bluetooth) as master mode

- a. Use COD Scan Tool software (get from <http://www.lanwind.com>)to get the class of device of the PC Bluetooth device .
- b. Use AT command to write in the class of device to the Bluetooth module BF10-A
- c. PIO0 (in no connect state), set the module as the master mode and reset or power on the module.
- d. There will be a Bluetooth connect dialog box in the PC, input corresponding Pin Code,

the PC will found a virtual com port.

e. PC use the serial port tool to open the corresponding com port, it's ok for the data communication.

The application is used for the portable monitoring product, such as Bluetooth electronic scale , Bluetooth sphygmomanometer, pedometer, etc.

#### 4. Connect the Bluetooth printer as the master mode

- a. Use COD Scan Tool software to get the class of device of Bluetooth printer
- b. Use AT command to write in the class of device and the Pin Code to the Bluetooth module BF10-A.
- c. PIO0 (in no connect state), set the module as the master mode and supply power to the module.
- d. It's successfully connected when the PIO1 is high level , it's ready to transmit data and print.

It's mainly used in some function expand system. It's very convenient to add functions such as Bluetooth print, etc.

#### 5. The master/slave mode replace the serial line directly

- a. Use AT command to set a same class of device to the master/slave mode (It's different with the common Bluetooth device)
- b. Set the PIO0 of the two modules as the master and the slave module separately.
- c. The module is successfully connected when the PIO1 is high level. The master/slave modules form an intangible and transparent data serial port line. The data transmission is transparent and full duplex.

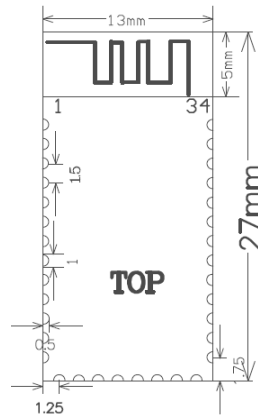
PS: It will automatically connect again when the two modules disconnect.

It's mainly used in industrial control, automation, serial port data transmissions, etc.

Download more documents: <http://www.lanwind.com/download.php>

**Please contact us with our technology support for the more application schemes and technology!** [MSN:xiaowuyeah@163.com](mailto:MSN:xiaowuyeah@163.com)

## 7. Module Size:



You could ask for the detailed packaging files and documents with the technology support of our company.

## 8. Notes :

a. About the operating environment of wireless Bluetooth, the wireless signals include the Bluetooth application are affected largely by the environment around, such as trees, metals, etc. The barriers will absorb the wireless signals partly and the distance of the data-transmission will be affected partly in the real application.

b. Module serial port level is 3.3V. You need to increase level translator chip if you need to connect with 5V level system.

c. The Bluetooth module need to be matched with the existing system, put in the outer shell. Because the wireless radio-frequency signal will be shield by metal shell, you'd better not to install in the metal shell.

d. PCB Design: The metal will weaken radio, you'd better not to set the ground and wire under the antenna,

e. The computer Bluetooth drive issue. For the slave-mode situation, there is Bluetooth adapter used for the computer. The all-purpose: WIDCOMM, IVT, windows self-driver. We recommend you to use windows self-driver.



## 9. Contact us:

We supply with the whole Bluetooth data-transmission solution, various kinds of Bluetooth data-transmission, industrial application areas, PC Bluetooth drive software development technology support .

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Shenzhen BlueFive Technology Co., Ltd.

Add: LongTaiLi Technology Building Room 304,  
No.30 Gaoxin Central Avenue 4<sup>th</sup>,

Hi-Tech Industrial Park,

Nanshan District,

Shenzhen,

China

Web: <http://www.lanwind.com>

Email: [xiaowuyeah@163.com](mailto:xiaowuyeah@163.com)

TEL:0086-755-29739852

0086-137-28690655

Fax: 0086-755-8601-7852

MSN:xiaowuyeah@163.com

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