High Speed Dual-mode Bluetooth Module

JDY-34 Bluetooth Module User Manual

Version

Version	Date	Description
JDY-34-V1.2	2020-04-22	Released version

Ⅰ. Product introduction

JDY-34 transparent transmission module is based on Bluetooth BLE 4.2 protocol + 3.0 standard, which supports BLE and SPP working at the same time, and SPP supports multi connection and SPP master-slave working at the same time, and does not need to be separately configured as a master or slave function. In the multi-connected mode, SPP supports 7 master-slaves (Android or computer) to connect with 1 IOS mobile phone, and BLE also supports Android or IOS connection. In the master mode, it supports the connection and communication with all SPP slaves on the market, including JDY-30, JDY-31, JDY-32, JDY-33, printer, etc. The communication interface is standard UART, which can configure parameters such as working mode, baud rate, BLE Bluetooth UUID and pairing password through AT instruction. The main advantage is high-speed communication. SPP supports data transmission and multi connection of 40kbyte per second after connecting with mobile phone or computer.

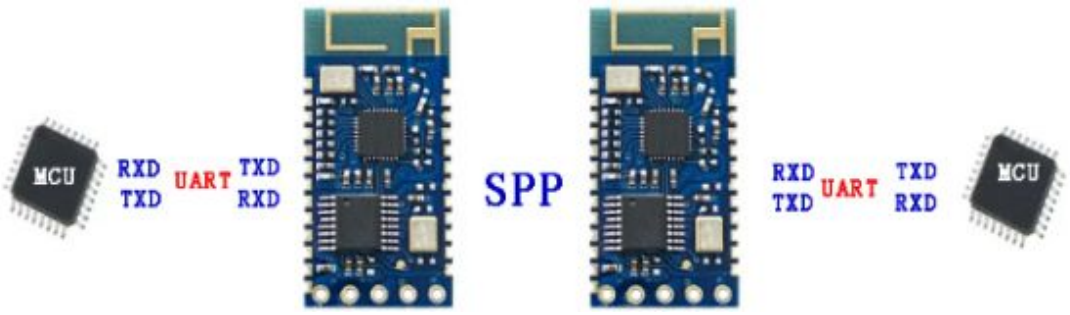
Ⅱ. Product application

2.1 Module communicates with mobile APP or applet

Module communicates with mobile phone or WeChat (applet or official account)

KB means KByte

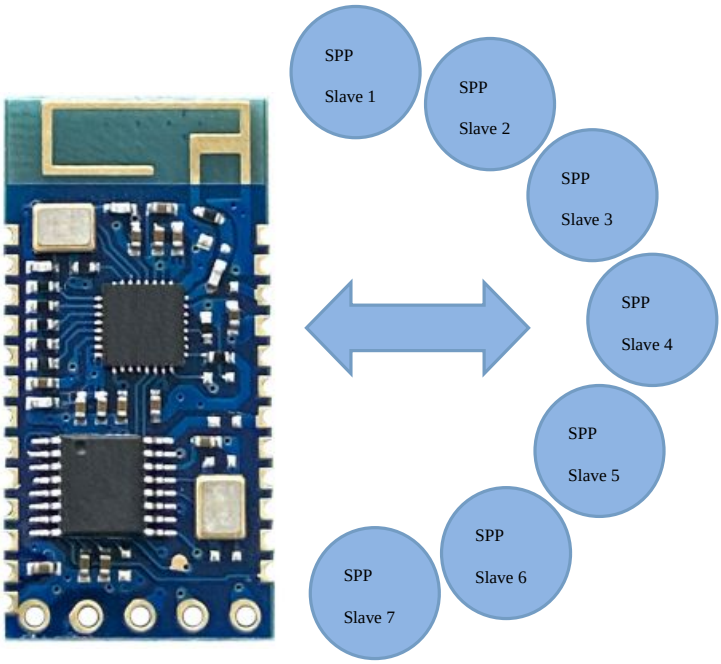
2.2 Module and module SPP master-slave communication



SPP master-slave communication

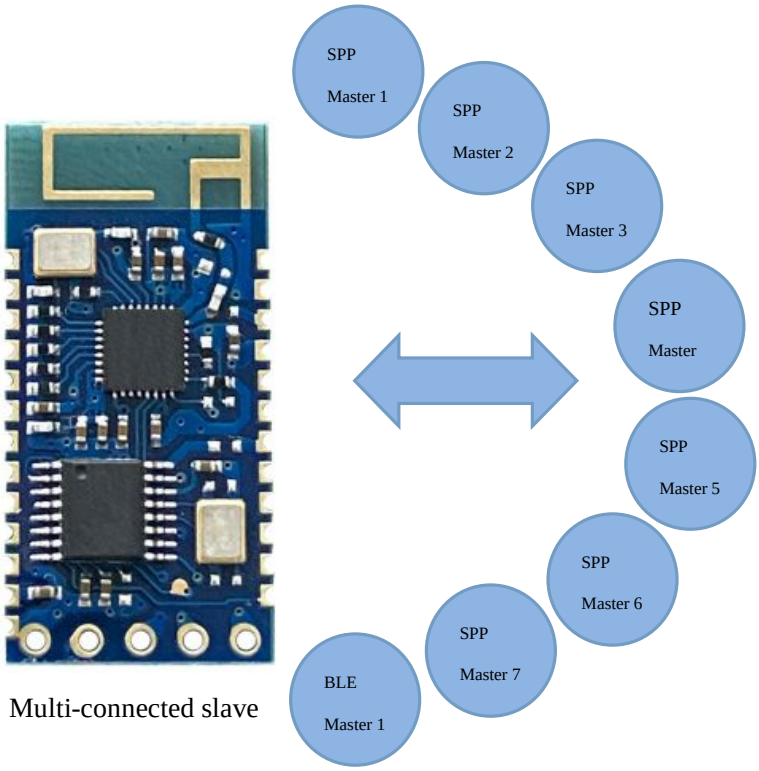
When JDY-34 is used as the SPP master, it supports connecting all SPP slave Bluetooth modules on the market, so JDY-30, JDY-31, JDY-32 and JDY-33 can be used as the slave of JDY-34.

2.3 SPP multi-connected master, connecting 7 SPP slaves



SPP Multi-connected master

2.4 SPP slave multi-connected mode supports simultaneous connection of 8 masters



Multi-connected slave

Multi-connected slave supports 7 Android phones connected with 1 IOS phone, or 7 computers connected with 1 IOS phone.

Ⅲ. Module parameter details

Module parameters

Product parameters	
Model	JDY-34
Antenna type	PCB board antenna
Working frequency band	2.4G
Transmitting power	4db（Max）
Communication interface	UART
Working voltage	2.1V – 3.6V
Working temperature	-40℃ - 80℃
Receiving sensitivity	-91dbm
Transmission distance	40 meters
Module size	27 * 12.88 *1.8mm
Bluetooth version	BLE 4.2 + SPP dual-mode（Downward compatible 4.2、4.0、3.0、2.1、2.0）
Transparent Transmission rate	**BLE 14K Byte/s** **SPP 40KByte/s (Measured speed of 40K byte/s on Android or computer Bluetooth)**
Instruction parameter saving	Parameter configuration of power down data saved
STM welding temperature	<260℃
Working current	15mA

FAQ (Frequently asked question)

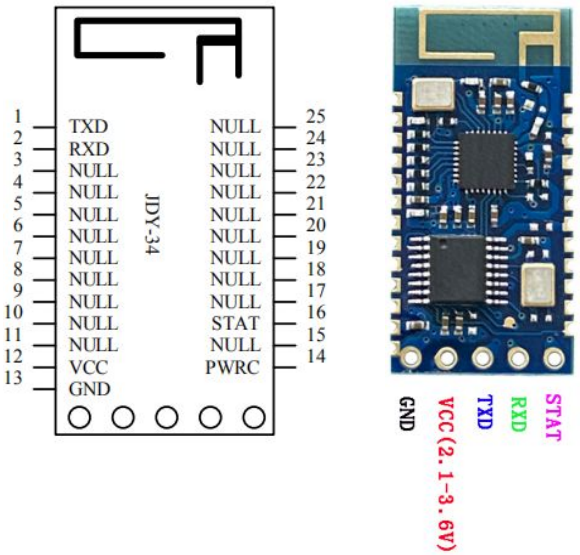
No.	Question	Answer
1	How to disconnect Bluetooth from MCU in connection state?	In the connection state, pull down the PWRC pin, and the serial port sends AT+DISC to disconnect.
2	How much data can serial port write at one time?	No byte limit
3	What is the fastest communication rate?	The actual test speed of SPP and computer or mobile phone is 40K Byte/s The actual test communication speed of BLE and IOS mobile phones is 14K Byte/s
4	There is no instruction to configure SPP master in the manual.	SPP is master and slave simultaneous work , and do not need to be configured separately.
5	How to get into deep sleep?	Recommended power-off mode
6	Why can't it multi-connected by default?	The default is AT+BTMOED1 mode, which is an alternative single connected mode. For multi-connection, please configure AT+BTMODE0 mode.
7	Is the serial port baud rate still the default baud rate when SPP's	Please use 1M or 750000 or 600000 baud rate setting.

	high-speed 40K byte/S is verified?	

Factory common default parameter configuration

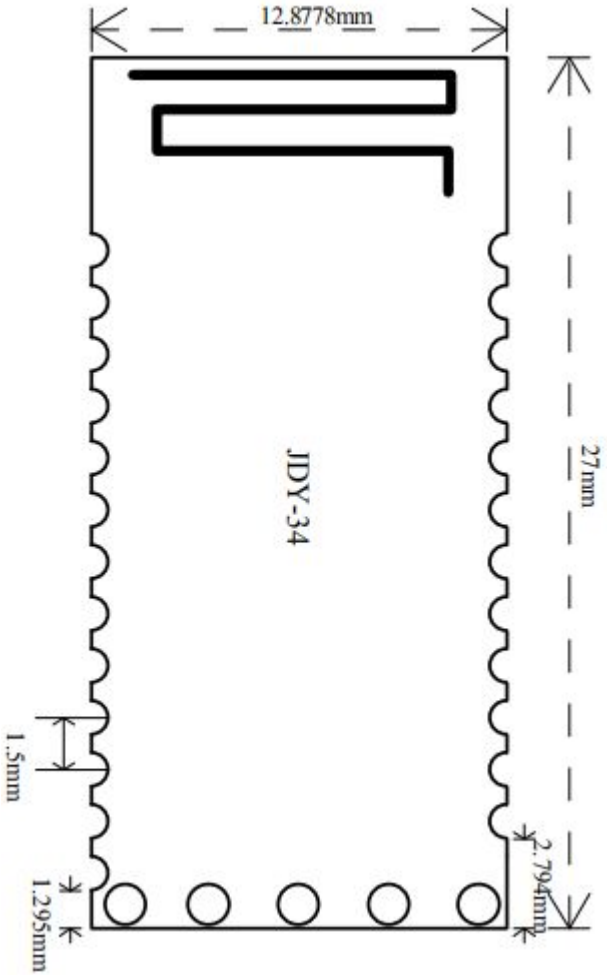
No.	Function	Factory default parameters	Instruction
1	Serial port baud rate	9600	**AT+BAUD4**
2	SPP broadcast name	JDY-34-SPP	**AT+NAMEJDY-34-SPP**
3	BLE broadcast name	JDY-34-BLE	**AT+NAMBJDY-34-IOS**
4	Working mode	SPP (master-slave) or BLE alternative	**AT+BTMODE1**
5	Output status	Output status	**AT+ENLOG1**
6	BLE 16 bit service UUID	FFE0	**AT+SVR16UUIDFFE0**
7	BLE 16 bit feature UUID	FFE1	**AT+RX16UUIDFFE1**
8	BLE 16 bit feature UUID	FFE2	**AT+TX16UUIDFFE2**
9	BLE 128 bit service UUID	E7810A7173AE499D 8C15FAA9AEF0C3F2	**AT+SVR128UUIDE7810A7173AE499D 8C15FAA9AEF0C3F2**
10	BLE 128 bit feature UUID	BEF8D6C99C214998 C15FAA9AEF0C3F2	**AT+TRX128UUIDBEF8D6C99C214998 C15FAA9AEF0C3F2**

Pin definition



Size and specification

It is enclosed in the data PCB file, which is 99SE version.



Pin function description

Pin	Function	Description
1	TXD	Serial port output pin (TTL level)
2	RXD	Serial port receive pin (TTL level)
3	NULL	
4	NULL	
5	NULL	
6	NULL	
7	NULL	
8	NULL	
9	NULL	
10	NULL	
11	NULL	
12	VCC	Power supply(2.1-3.6V)
13	GND	Power ground
14	PWRC	When it is necessary to send AT instruction in connected state, it can indicate AT instruction mode by keeping this pin low level. In the

		unconnected state, this pin is in AT instruction mode regardless of high or low level.
15	NULL	
16	STAT	Low level not connected, high level after connection.，Stat pin needs to be added with a diode to MCU
17	NULL	
18	NULL	
19	NULL	
20	NULL	
21	NULL	
22	NULL	
23	NULL	
24	NULL	
25	NULL	

Ⅳ. Serial port AT instruction set

No	Instruction	Function	Master/ Slave	Default
1	AT	Test	M/S	-
2	AT+BTMODE	Setting Bluetooth working mode	M/S	1
3	AT+VERSION	Query version No.	M/S	-
4	AT+RESET	Soft reset	M/S	-
5	AT+DEFAULT	Restore factory configuration	M/S	-
6	AT+ENLOG	Serial port output information shielding switch	M/S	1（On）
7	AT+BAUD	Serial port baud rate setting	M/S	4（9600）
8	AT+PARITY	Serial port parity bit setting	M/S	0（No parity）
9	AT+PIN	SPP connection password settings	M/S	1234
10	AT+TYPE	Connect password switch	M/S	0（Off）
11	AT+NAMB	BLE broadcast name setting	S	JDY-34-BLE
12	AT+NAME	SPP broadcast name setting	S	JDY-34-SPP
13	AT+INQ	SPP master search slave	M	-
14	AT+SINQ	SPP master stop search	M	-
15	AT+CONA	SPP master connect slave MAC address	M	-
16	AT+LADDR	Query or setting module MAC address	M/S	-
17	AT+DISC	Disconnect SPP or BLE	M/S	-
18	AT+STAT	Query connection status	M/S	-

19	AT+MTU	SPP compatible low speed channel switch	M/S	0
20	AT+AUTEN	Automatic response on in multi-connected state	S	0
21	AT+SENDID	Setting of multi-connected transparent transmission channels		0
22	AT+CIDEN	Point to first device when multi-connected	S	0
23	AT+DATA	At instruction specifies device to send data	M/S	-
24	AT+SVR16UUID	Setting 16 bit service UUID parameter	S	FFE0
25	AT+RX16UUID	Setting 16 bit feature UUID parameter	S	FFE1
26	AT+TX16UUID	Setting 16 bit feature UUID parameter	S	FFE2
27	AT+SVR128UUID	Setting 128 bit service UUID parameter	S	E7810A7173AE499D8C15FAA9AEF0C3F2
28	AT+TRX128UUID	Setting 128 bit feature UUID parameter	S	BEF8D6C99C21499D8C15FAA9AEF0C3F2
29	AT+BATT	Setting BLE service battery service capacity	S	100

Ⅴ. AT instruction function description

Special note: MCU sending AT instruction needs to end up with \r\n. The serial port tool sending AT instruction does not need to end up with \r\n. For serial port tools, please check **"Sending enter"**.

Test instruction

Instruction	Response	Parameter
AT	+OK	Null

Setting/query - Working mode configuration

Instruction	Response	Parameter
AT+BTMODE<Param>	+OK	Param（0-4） 0：SPP（Multi-connected slave）and BLE slave **1、SPP（Master slave）or BLE alternative** 2、SPP（Multi-connected master）without BLE function 3、SPP（Master slave SPP single connection
AT+BTMODE	+	

	BTMODE=<Param>	alternative）without BLE function 4、Single BLE slave, without SPP function **Default： 1**

Special note: Factory AT+BTMODE1 mode, and the printer is connected to multi-connected slave, please select AT+BTMODE0 mode.

Query - Version No.

Instruction	Response	Parameter
AT+VERSION	+JDY-34-V1.2	Null

Setting - Soft reset

Instruction	Response	Parameter
AT+RESET	OK	Null

Restore factory configuration (Restore to factory default configuration parameters)

Instruction	Response	Parameter
AT+DEFAULT	+OK	Null

Setting/query - Serial port status output enable

Instruction	Response	Parameter
AT+ENLOG<Param>	+OK	Param：1 or 0 1：Open serial port status output 0：Close serial port status output Default：1
AT+ENLOG	+ENLOG=<Param>	

Special note: When you need to turn on the machine and do not print the information such as +START=OK, +CONNECTED-ID=0, +DISCONNECTED-ID=0, please configure AT+ENLOG to 0.

Setting/query - Baud rate

Instruction	Response	Parameter
AT+BAUD<Param>	+OK	Param（0-F） 1：1200 2：2400 3：4800 **4：9600** 5：19200

AT+BAUD	+BAUD=<Param>	6：38400 7：57600 8：115200 9：128000 A：230400 B：256000 C：460800 D：600000 E：750000 F：1000000 **Default baud rate： 4**

Note: High speed baud rate is required for high speed communication.

Setting/query - Serial port parity bit

Instruction	Response	Parameter
AT+PARITY<Param>	+OK	Param（0-2） 0、No parity bit 1、Odd parity bit（ODD） 2、Even parity bit（EVEN） Default： 0
AT+PARITY	+PARITY=<Param>	

Setting/query - SPP connection password

Instruction	Response	Parameter
AT+PIN<Param>	+OK	Param（0000-9999） Default： 1234
AT+PIN	+PIN=<Param>	

Setting/query - SPP connection password switch

Instruction	Response	Parameter
AT+TYPE<Param>	+OK	Param（0-1） 0、SPP connection without password 1、SPP connection with password Default： 0
AT+TYPE	+TYPE=<Param>	

Note: No password by default, if password matching is required, please configure it as 1.

Setting/query - BLE Broadcast name

Instruction	Response	Parameter
AT+NAMB<Param>	+OK	Param（Maximum length 18 bytes） Default：JDY-34-IOS
AT+NAMB	+NAMB=<Param>	

Setting/query - SPP Broadcast name

Instruction	Response	Parameter

AT+NAME<Param>	+OK	Param（Maximum length 18 bytes） Default：JDY-34-SPP
AT+NAME	+NAME=<Param>	

Setting - SPP master scans SPP slave

Instruction	Response	Parameter
AT+INQ<Param>	OK	Null
AT+INQ	OK	

Serial port sending: After AT+INQ, the searched device information when printing are as follows,

+DEV:1=200427201431,JDY-34-SPP

+DEV:2=0D8888332211,JDY-33-SPP

+DEV:3=591019770006,JDY-34-SPP

+SINQ

Setting - SPP master actively stops searching

Instruction	Response	Parameter
AT+SINQ	OK	Null

Setting - SPP master specifies MAC address connection

Instruction	Response	Parameter
AT+CONA	OK	Param:（MAC Hex character string）

Example: AT+CONA200427201431

Connected output：+CONNECTED>>0x200427201431,1

Output information format description after connected, 0x200427201431 indicates the MAC address of the connected slave, 1 indicates the currently connected device ID number.

Query - SPP Bluetooth MAC address

Instruction	Response	Parameter
AT+LADDR	+LADDR=<Param>	Param:MAC address hex character string

Example of modifying MAC address: AT+LADDR112233445566

Setting - Disconnect

Instruction	Response	Parameter

AT+DISC	+OK	Param：（0-7）device ID
AT+DISC<Param>		

Note: Serial port sends AT+DISC to disconnect all connected devices. AT+DISC followed with device ID number means only to disconnect specified devices.

Query - Connection status

Instruction	Response	Parameter
AT+STAT AT+STAT<Param>	+STAT=<Param1>,<Param2>	Param1(0-7) device ID number Param2(0-1) connection status 1：Indicates connected 0：Indicates not connected

Note: AT+STAT is to query the status of all devices. AT+STAT followed with the device ID, indicating that only the connection status of the specified device is queried.

Query - Querying MAC address of SPP device through device ID

Instruction	Response	Parameter
AT+SPPADDR<Param>	+SPPADDR=<Param>	Param(1-7) device ID number

Note: After connecting, pull down the PWRC pin, and the MAC address of the currently connected SPP device can be queried through the device ID number.

Setting/query - SPP compatible low speed communication switch

Instruction	Response	Parameter
AT+MTU<Param>	+OK	Param(0-1) 0：High speed 1：Compatible low speed SPP slave Default：0
AT+MTU	+MTU=<Param>	

Note: When the JDY-24M is used as the master to connect with the JDY-24M slave, or the JDY-24M is used as the slave to connect with the computer or mobile phone, the MTU does not need to be set. When JDY-24M is needed to be the master to connect JDY-31, JDY-32 and JDY-33, be sure to set the MTU of JDY-34 to low speed, otherwise the slave will not receive the big packet data sent by the master.

Setting/query - Automatic response and transmission of multi-connected slave communication

Instruction	Response	Parameter
AT+AUTEN<Param>	+OK	Param(0-1) 0：Open automatic response in multi-connected mode 1：Close automatic response in multi-connected mode Default：0
AT+AUTEN	+AUTEN=<Param>	

Note: This instruction is only valid in AT+BTMOE0 slave multi-connected mode. When automatic response is turned on and several masters are connected to JDY-34, as long as the master sends data to JDY-34, the upper channel on the serial port will point to the master sending data.

Example: After A, B, C, D and E mobile phones are connected to JDY-34, when A sends data to JDY-34, the serial port upper channel pointing to master A, and then the serial port sends the transparent transmission data to master A. When e device sends data to JDY-34, the channel pointed by the serial port will point to master E, and the data sent from the serial port will be sent to master E.

Setting/query - Setting of multi-connected transparent transmission channels

Instruction	Response	Parameter
AT+SENDID<Param>	+OK	Param(0-7) 0：BLE transparent transmission channel 1 to 7：SPP transparent transmission channels
AT+SENDID	+SENDID=<Param>	

Note: In the multi-connected state, the user can pull down the PWRC pin and send the AT+SENDID instruction to open the designated channel of serial port sending data to APP. For example, after A (ID= 1), B (ID= 2) and C (ID= 3) mobile phones are connected to the JDY-34 module, the upward channel of serial port points to 1, so the serial port can only send data to A at this time. If the data needs to be sent to B, the serial port needs to send AT+SENDID2, and the serial port can send transparent transmission data to mobile phone B.

Setting/query - Instruction specifies ID number to send data

Instruction	Response	Parameter

AT+DATA<P1><P2>	+OK	P1(0-7) device ID number P2(Data content to be sent)
AT+DATA	+DATA=<Param>	

Multi-connection for example: Send 1122334455 data to device 5 ID

Instruction：AT+DATA511223344

Setting/query - BLE 16 bit service UUID

Instruction	Response	Parameter
AT+SVR16UUID<Param>	+OK	Param：UUID character string Default：FFE0
AT+SVR16UUID	+SVR16UUID=<Param>	

Setting/query - BLE 16bit feature UUID（Attribute: Notify, write without response）

Instruction	Response	Parameter
AT+RX16UUID<Param>	+OK	Param：UUID character string Default：FFE1
AT+RX16UUID	+RX16UUID=<Param>	

Setting/query - BLE 16 bit feature UUID（Attribute: write without response）

Instruction	Response	Parameter
AT+TX16UUID<Param>	+OK	Param：UUID character string Default：FFE2
AT+TX16UUID	+TX16UUID=<Param>	

Setting/query - BLE 128 bit service UUID

Instruction	Response	Parameter
AT+SVR128UUID<Param>	+OK	Par：UUID character string Default： E7810A7173AE499D8C15FAA9AEF0C3F2
AT+SVR128UUID	+SVR128UUID=<Par>	

Setting/query - BLE 128 bit feature UUID（Attribute: Notify，write without response）

Instruction	Response	Parameter

AT+TRX128UUID<Param>	+OK	Par：UUID character string Default： BEF8D6C99C21499D8C15FAA9AEF0C3F2
AT+TRX128UUID	+TRX128UUID=<Par>	

Setting/query - Battery service capacity

Instruction	Response	Parameter
AT+BATT<Param>	+OK	Param：（0-100） Default：100
AT+BATT	+BATT=<Param>	

Ⅵ. BLE UUID attribute details

BLE 16 bit UUID list

Service UUID：FFE0 （Service UUID Default ffe0 User can modify）

Feature UUID：FFE1（For transparent transmission Default ffe1 User can modify）

Feature UUID：FFE2 （For module function configuration）

BLE 128 bit UUID list

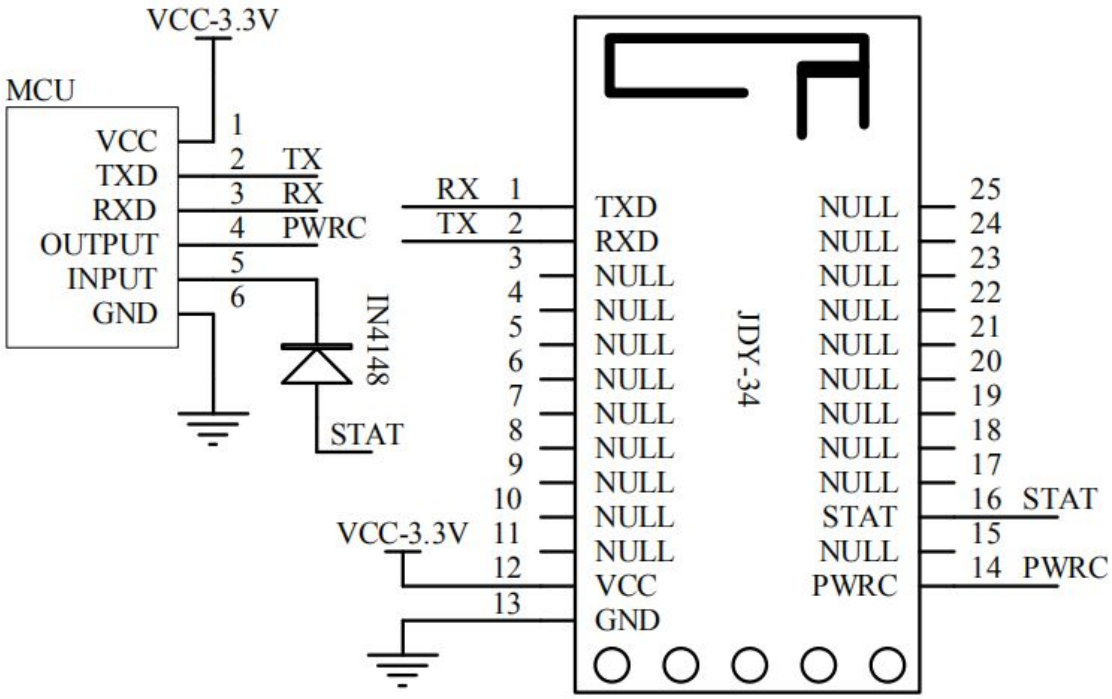
Service UUID：E7810A71-73AE-499D-8C15-FAA9AEF0C3F2

Feature UUID：BEF8D6C9-9C21-499D-8C15-FAA9AEF0C3F2

Feature attribute：Notify, write without response

Ⅶ. JDY-34 basic application wiring diagram

Wiring diagram of serial port communication mode



Special note:

For the connection between the stat pin of jdy-34 and the input pin of MCU, please add a diode