Bluetooth module BK3254 manual

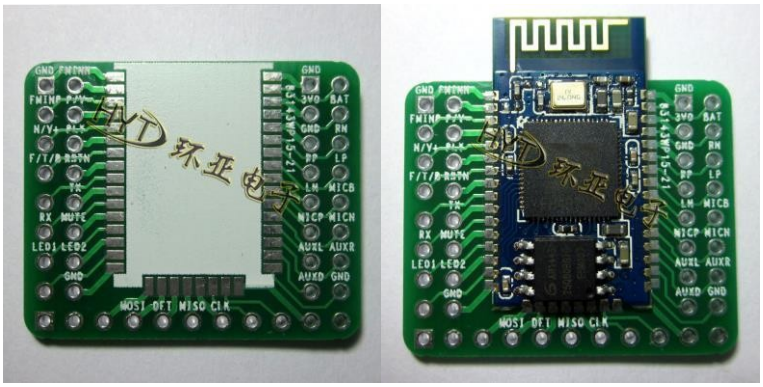
table of Contents

Bluetooth module **BK3254** manual

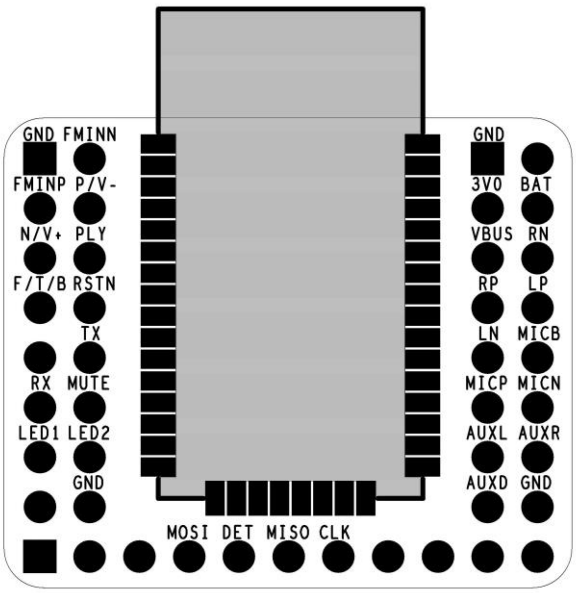
1. BK3254

Map 1.1 BK3254 Advertising map

1 foot



Map 1.2 BK3254 Adapter plate (2.4x3.1cm)



Map 1.3 BK3254 Pin definitions

Bluetooth module **BK3254** manual

1.1 Module Description

This module uses the master Beken (Broadcom) of BK3254 Chip module provides a high sound quality and compatibility, superior overall performance. Bluetooth module uses driver-free way, customers just need to block access to applications, you can quickly achieve wireless transmission of music, enjoy wireless music while supporting the key AT Serial command control. Support intelligent Chinese / English voice prompts; integration SD / TF Playback support MP3 / WMA / WAV Music formats; Support U

Disc player,

,

Internal support LINE-IN Internal support FM Radio, support for infrared remote control. Can be stored 6 A paired device, the module automatically switched back to the last connected device pairing. in case 6 Paired devices simultaneously open, then automatically connect to the last paired device.

stand by AT Modify Bluetooth name, 16 Characters or less, see AT Instructions.

1.2 Applications

The module is mainly used for short distance transmission of music, you can easily and notebook computers, mobile phones, PDA And other digital products connected to Bluetooth devices, wireless transmission of music.

1) Bluetooth stereo speakers;

2) Stereo Bluetooth headset;

3) Bluetooth phone;

4) Bluetooth control and multimedia equipment.

1.3 Basic characteristics

1) Bluetooth v4.1 + EDR ;

2) A2DP v1.2 ;

3) AVRCP v1.0 ;

4) HFP v1.5 ;

5) GAVDP1.2 ;

6) HSP1.2 ;

1.4 Performance

parameters Model BK3254

Bluetooth Specification Bluetooth V4.1

Supply voltage DC2.8-4.2V , ≤ 2.9V Automatic shutdown, ≤ 3.1V Alarm support Bluetooth protocol HFPV1.5 , A2DPV1.2 , AVRCPV1.4 , HSP1.2 , GAVDP1.2

Operating current ≤ 45mA

Standby current < 500uA

temperature range - 40ºC ~ + 85ºC

Wireless transmission range ≤ 10 Meters

transmit power Class2 4dbm

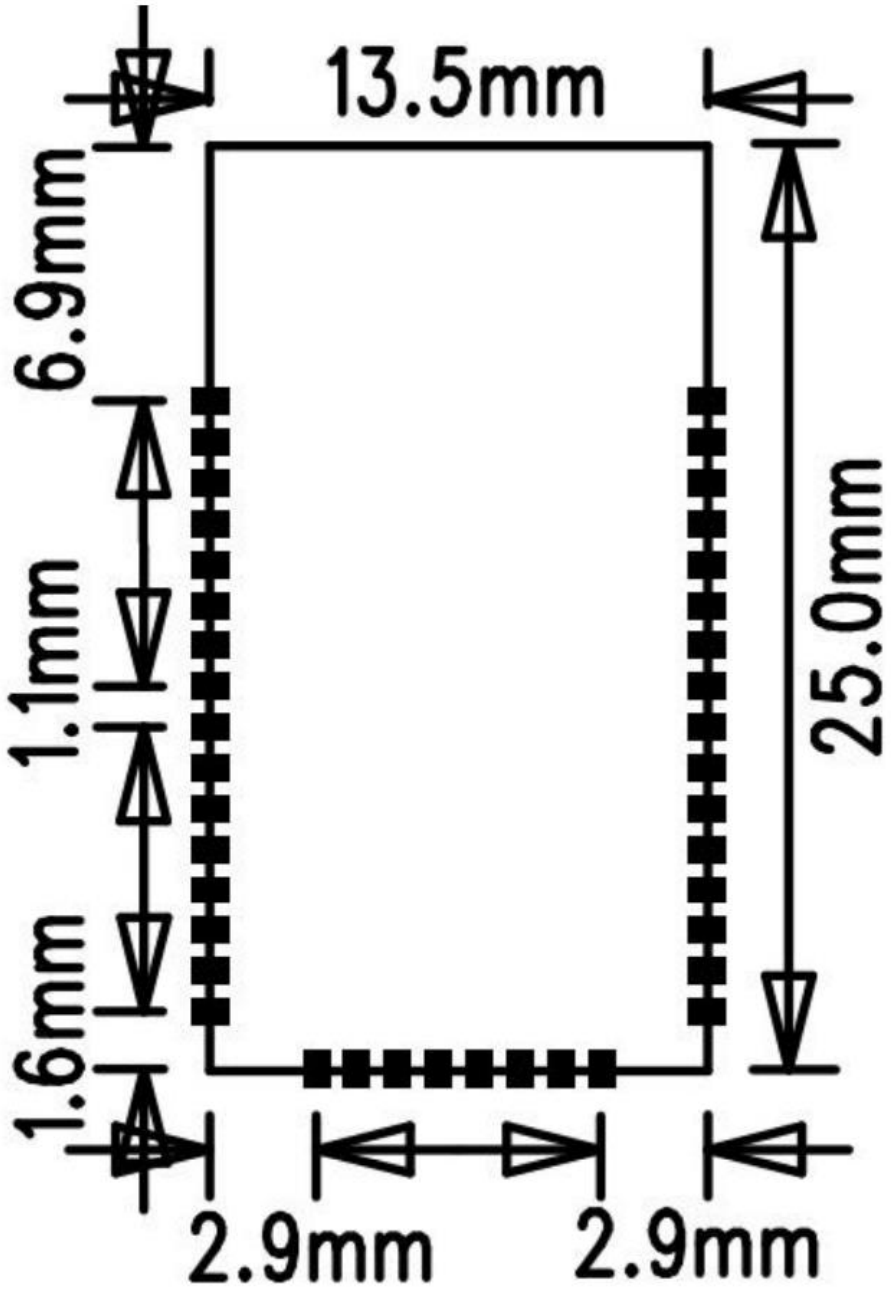
Sensitivity - 80dBm <0.1% BER

Frequency Range 2.402GHz ~ 2.480GHz

External Interface Serial (TTL Level), and PC Connection requires conversion level, such as CH340G , USB turn TTL Audio Performance SBC decoding

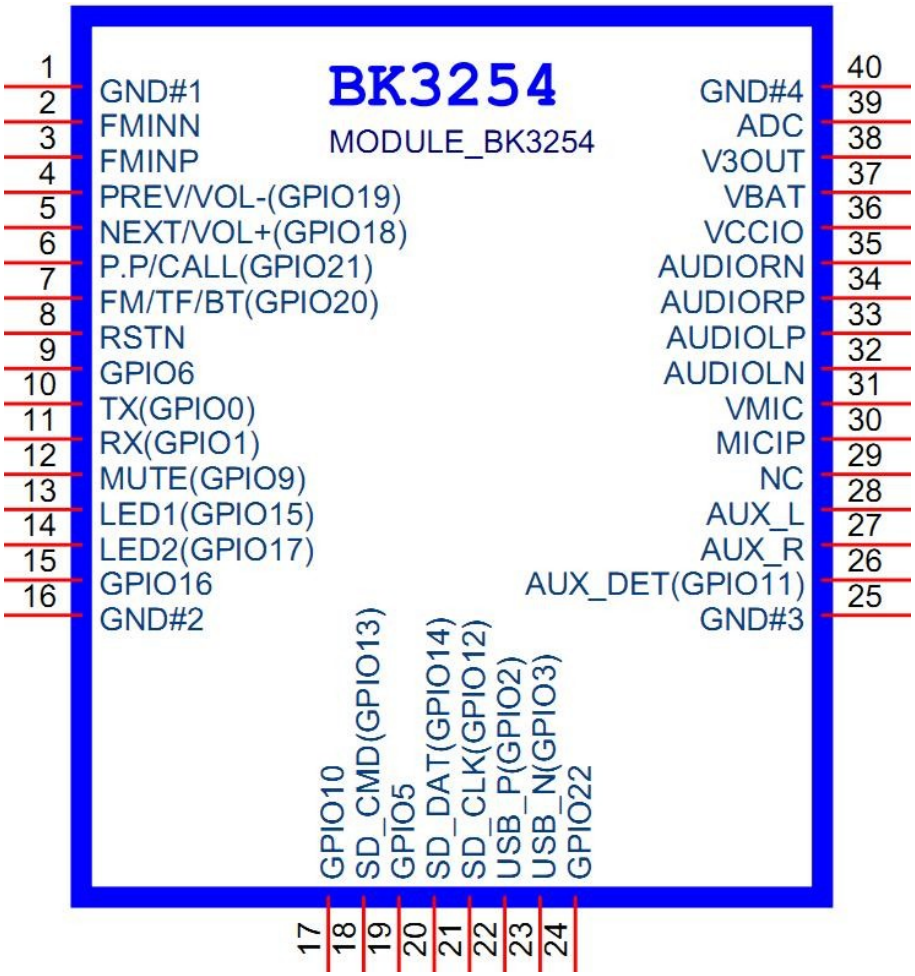
1.5 Module size

Pad size: 1.6x0.8mm



Map 1.4 BK3254 Dimensions

1.6 **IO** definition



Map 1.5 BK3254 Pin definitions

Bluetooth module **BK3254** manual

IO Numbering	IO name	IO description
1	GND	The antenna _
2	FMINN	FM The negative terminal of the antenna
3	FMINP	FM The positive terminal of the antenna
4	PREV / VOL- (TMS)	Click on the one / long press volume down
5	NEXT / VOL + (TCK)	Click the Next / long press the volume increase
6	PP / CALL (TDO)	Play / Pause / Take hang / releases / re-pair
7	CHG_MODE (TDI)	BT / FM / TF / U plate/ AUX Mode switch
8	RSTN	Reset (active low)
9	VOL- (GPIO6)	Click the volume down
10	TX (GPIO0)	Serial ports TX (TTL Level 3.3V)
11	RX (GPIO1)	Serial ports RX (TTL Level 3.3V)
12	MUTE (GPIO9)	Mute Control (mute output low), the control terminal of the power amplifier
13	LED0 (GPIO15)	Status Indicator
14	LED1 (GPIO17)	Status Indicator
15	VOL + (GPIO16)	Click the volume up
16	GND	Power Ground
17	FM_DISABLE (GPIO10)	FM Close Foot (High level: FM Effective; low: FM Failure) High default Note: Before powering effective control, control is disabled after power
18	SPI_MOSI (GPIO13)	SD / TF of SPI interface
19	GPIO5	Unused
20	SPI_MISO (GPIO14)	SD / TF of SPI interface
twenty one	SPI_CLK (GPIO12)	SD / TF of SPI Clock lines TF Open insertion detection
twenty two	USB_P (GPIO2)	USB positive
twenty three	USB_N (GPIO3)	USB negative
twenty four	IR (GPIO22)	Infrared interface
25	GND	Power Ground
26	AUX_DET (GPIO11)	AUX Insertion detection (Default high, active low)
27	AUX_R	AUX Right channel input
28	AUX_L	AUX Left channel input
29	NC	No connection
30	MICIP	MIC Input positive terminal
31	VMIC	MIC Bias voltage
32	AUDIOLN	Audio left differential output negative end
33	AUDIOLP	Audio left positive differential output terminal
34	AUDIORP	Audio right differential output positive terminal
35	AUDIORN	Audio right differential output negative end
36	VDD3IO	IR Power supply interface
37	VBAT	power input(3.3V ~ 4.2V)

38	3VOUT	3V Output, SD / TF power supply
39	ADC	ADC Input (not enabled)
40	GND	Power Ground

1.7 Precautions

1. Application of the process module, please avoid influence of interference source amplifier, a booster circuit and the like on the module, the module power supply circuit to avoid the formation of a series circuit with the power circuit unit, in order to improve the whole SNR .
2. On Bluetooth wireless environment, including Bluetooth wireless signals are greatly affected by the surrounding environment, such as trees, an obstacle such as a metal will absorb a certain radio signal, so that in practical application, the distance data transmission by certain influences.
3. Since Bluetooth module supporting the existing system should be placed in the housing. Since the metal housing of the radio frequency signal is a shielding effect. It is recommended not installed in a metal housing.
4. PCB Layout: Bluetooth module antenna portion is PCB Antenna, since the metal would impair the functioning of the antenna, when a layout of the module, the module floor and below the antenna traces prohibited, if hollowed out better.

1.8 **AT** instruction

1.8.1 Serial Configuration

1. Baud Rate 9600 ;
2. 8 Data bits;
3. No parity bit;
4. One stop bit.

1.8.2 Instruction format

Control Instruction format: COM + <CMD> [<param>] \ r \ n

Feedback data format: < IND> [<param>] \ n

Description: The instruction is a control panel to control the Bluetooth control commands to " COM + " Back to start followed by < CMD> Control instruction, if the instruction to continue the transmission parameters, the instruction immediately < param> Parameters, and finally to "\ r \ n " End.

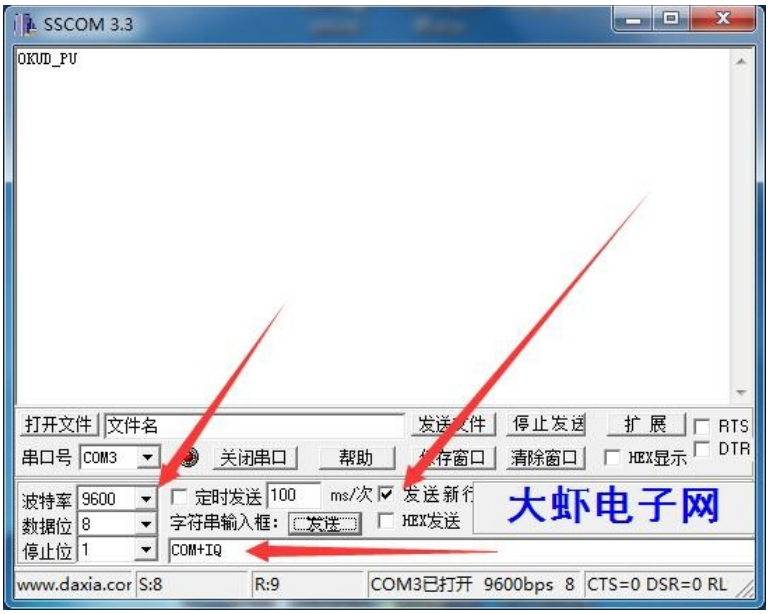
The feedback data is Bluetooth data and various status information to the master, a feedback command, if necessary with reference <IND> Number, followed by < IND> After continuing transmission < param> parameter.

note:

- \ R \ n : Newline character is (keyboard "Enter" key), hexadecimal **0x0D** , **0x0A** .

1.8.3 Serial demo

Figure 1.6 Below:



n "

PC Sends commands must

check, instead of newline "\ r

\ "\ r \ n" Representatives of

the keyboard. " Enter key"

Map 1.6 Serial Open

1.8.4 Serial control command

instruction table	Parameter Description	Instruction Description Function	For example
	For example:		COM + SNAME + XXXX \ r \ n
	COM + SNAME + BTBLUE \ r \ n		XXXX :maximum 16 Characters
	+ SNAME + "\ r \ n On behalf of a carriage return line feed, debugging help modify the Bluetooth name correctly: OK \ n		
	Hands input (Enter key)"		error: ERR \ n
	BTBLUE Is the name after the modification		Off effect after restart
			COM + TONEON \ r \ n
	xx : " ON " Open tone		
			Open tone
	xx : " OFF " Close beep		
TONExx		Tone settings COM + TONEOFF \ r \ n	
	Support power-down save		
			Close beep
	Enabled by default tone		
			Take effect immediately
			COM + MTONE \ r \ n
MTONE		Query Tone settings turned on: TOMEON \ r \ n	
			shut down: TOMEOFF \ r \ n COM
			+ GOBACKON \ r \ n
	xx : " ON " Even turned back		
			The power is turned back even
	xx : " OFF " Close back even		
GOBACKxx		Power-on time even setting COM + GOBACKOFF \ r \ n	
	Support power-down save		
			Turn off the power back on even
	The default power is turned back on even		
			Take effect immediately
			COM + MGOBACK \ r \ n
MGOBACK		Query back even set to open: GOBACKON \ r \ n	
			shut down: GOBACKOFF \ r \ n COM
			+ CALLON \ r \ n
	xx : " ON " Open calls		
			Open calls
	xx : " OFF " Close calls		
CALLxx		Call feature set COM + GOBACKOFF \ r \ n	
	Support power-down save		
			Close calls
	Call function enabled by default		
			Power restart to take effect
			COM + MCALL \ r \ n
MCALL		Call open query: CALLON \ r \ n	
			shut down: CALLOFF \ r \ n

PR	Pairing	BT + PR \ r \ n
AC	Finally Paired connection Equipment	BT + AC \ r \ n
DC	Disconnect	BT + DC \ r \ n
CA	Answer the call	BT + CA \ r \ n
CJ	To reject a call	BT + CJ \ r \ n
CE	Hang up the phone	BT + CE \ r \ n
CR	Last Number Redial	BT + CR \ r \ n
PP	Music Play / Pause	COM + PP \ r \ n
PN	next track/ FM The next stage	COM + PN \ r \ n
PV	previous piece/ FM On one	COM + PV \ r \ n
VP	Volume Up	COM + VP \ r \ n
CD	Volume down	COM + VD \ r \ n
VOLx	x :(0-AF) Buttons, infrared, serial port settings Support power-down save	COM + VOLx \ r \ n Set the volume correctly: VOLx \ n error: ERR \ n
MVOL	x :(0-15)	COM + MVOL \ r \ n Query current volume is correct: VOLx \ n error: ERR \ n

PWD Only power is turned on again off COM + PWD \ r \ n PWDS Soft-Off COM + PWDS

\ r \ n PWOS Soft Power COM + PWOS \ r \ n REBOOT This is equivalent to power restart

restart restart COM + REBOOT \ r \ n

MC Switch to the next job COM + MC \ r \ n mode

MBT Bluetooth mode COM + MBT \ r \ n MSD TF Mode (if there is COM

+ MSD \ r \ n effect)

MAX AUX Mode (if COM + MAX \ r \ n effective)

MFM FM Mode (if there is COM + MFM \ r \ n effect)

MUD U Disk mode (if there is COM + MUD \ r \ n effect)

Query the current mode and

IQ COM + IQ \ r \ n

status

COM + MPM0 \ r \ n Repeat All Tracks

MPM0 correct: PLAY_ALL \ n

(TF / U Under disk mode)

Error: ERR \ n

COM + MPM1 \ r \ n Single Loop

MPM1 correct: PLAY_ONE \ n

(TF / U Under disk mode)

Error: ERR \ n

The current inquiry MP3 COM + MPMC \ r \ n

MPMC Play Mode Repeat All: PLAY_ALL \ n

(TF / U Under disk mode) single cycle: PLAY_ONE \ n

xxxx :(0001-9999) Play selections

SMPxxxx COM + SMP0040 \ r \ n

(' 0001 ' Represents the 1 First) (TF / U Under disk mode)

Query currently playing COM + MRMP3 \ r \ n

MRMP3 x :(1-9999) MP3 Song number correctly: music_mun = x \ n

(TF Mode) Error: ERR \ n

Query current mode COM + MMMP3 \ r \ n

MMMP3 x :(1-9999) MP3 The correct number of songs: MMMPx \ n

(TF / U Under disk mode) Error: ERR \ n

Query currently playing COM + MRUSB \ r \ n

MRUSB x :(1-9999) U Disc song number correctly: music_mun = x \ n

(U Under disk mode) Error: ERR \ n

SC FM Machine start station search FM + SC \ r \ n ST

FM Stop station search FM + ST \ r \ n

Get the current radio

frequency

GF FM + GF \ r \ n

FM_FQ = 875 ~ 1081

between

COM + SFM01 \ r \ n

By sending a sequence number

SFMxx xx : 01-99 correct: FM_FQ = 998 \ n

Select the table error: ERR

\ n

COM + SETFMxxx \ r \ n SETFMxxx xxx :

875 to 1081 set up FM Frequency correct: OK \ n error: ERR \ n

			COM + MRFM \ r \ n
			correct: FM_FQ = xxx \ n
		The current inquiry FM Frequency such as: FM_FQ = 998 \ n	
MRFM	xxx : 875 to 1081 rate		
			FM_FQ = 1072 \ n
		(FM Mode)	
			Representing 99.8 , 107.2
			error: ERR \ n
		Inquire FM How to search	COM + MMFM \ r \ n
MMFM	xx : 01-99 station		correct: MFMxx \ n
		(FM Mode)	error: ERR \ n
		Inquire FM of xx sequence	
MFFMxx			COM + MFFM01 \ r \ n
		number	
(xx :sequence			correct: FM_FQ = xxx \ n
FM			
		A frequency corresponding to	
number)			error: ERR \ n
		(FM Mode)	

1.8.5 Query / feedback command

serial command	Description Example	Bluetooth return information
MR	Queries Bluetooth address AT + MR \ r \ n	AD: 191919191919 \ r \ n
MN	Bluetooth name query AT + MN \ r \ n	NA: BK3254 \ r \ n
MO	Bluetooth connection status inquiry AT + MO \ r \ n	connection succeeded: C1 \ r \ n no connection: C0 \ r \ n
MV	Bluetooth playback status inquiry AT + MV \ r \ n	Play: MB \ r \ n time out: MA \ r \ n disconnect: M0 \ r \ n
MY	Bluetooth inquiry HFP status AT + MY \ r \ n	disconnect: M0 \ r \ n connection: M1 \ r \ n Caller: M2 \ r \ n Outgoing: M3 \ r \ n calling: M4 \ r \ n

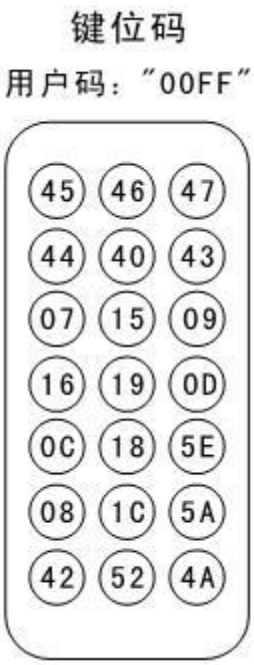
The following is the Bluetooth initiative sent to the state

Serial command	Description Description	Bluetooth return information
EEROR	error	EEROR \ n
OK	Complete control instruction identifying	OK \ n
II	connection succeeded	II \ r \ n
IA	disconnect	IA \ r \ n
PLAY_ALL	Repeat All Tracks (TF Mode)	PLAY_ALL \ n
PLAY_ONE	Single loop (TF Mode)	PLAY_ONE \ n
VOLx	The current volume x level	VOLx \ n x On behalf of volume level
FM	Each time you switch FM Channel, the channel number automatic return	FM_FQ = 1081 \ n
MP3	Each time you switch MP3 Songs, song number automatically returns	music_mun = 1 \ n
USB	Each time you switch U Disk music, song number automatically returns	music_mun = 1 \ n
IRx	(TF / U Under disk mode)	IRx \ n
	Each key infrared remote control numeric keys, the key value is automatically returned x On behalf of the numeric keys	
SY_PO	Bluetooth turned on	SY_PO \ n
ON	Bluetooth turned on	ON \ r \ n
SY_PF	Bluetooth off	SY_PF \ n
BT_AC	The current Bluetooth mode, Bluetooth Are back to even	BT_AC \ n
BT_WP	the current Bluetooth mode, Bluetooth The current state is in	BT_WP \ n
BT_WC	pairing mode of Bluetooth, Bluetooth	BT_WC \ n

BT_CN	The current state is waiting for a connection in Bluetooth mode, Bluetooth	BT_CN \ n
BT_PA	Currently connected Bluetooth mode, Bluetooth	BT_PA \ n
BT_IC	Is currently being played Bluetooth mode, Bluetooth	BT_IC \ n
BT_OC	There is currently calls Bluetooth mode, Bluetooth	BT_OC \ n
BT_EC	There is currently a Bluetooth phone play mode, Bluetooth	BT_EC \ n
SD_PA	He is busy Currently SD Card mode, SD	SD_PA \ n

SD_PU	Card playing is the current state SD Card mode, SD	SD_PU \ n
UD_PA	Card is currently in a suspended state U Disk mode, disk U	UD_PA \ n
UD_PU	Playing status is currently U Disk mode, disk U	UD_PU \ n
FM_PA	It is currently in a suspended state FM mode, FM	FM_PA \ n
FM_PU	The current state is're listening to FM mode, FM	FM_PU \ r \ n
FM_SC	It is currently in a suspended state FM mode, FM	FM_SC \ n
AX_PA	Tuning status is currently being AUX mode,	AX_PA \ n
AX_PU	AUX Playing status is currently AUX mode, AUX In a suspended state	AX_PU \ n

1.9 Infrared remote control



1.9.1 IR infrared control command

table Key Description

0x45 The switch button (short press switch, the Bluetooth module is powered on by default)

Mode (0x46) Mode switching key

(0x47) Mute button

> | (0x44) play / Pause; FM Mode: Long press to re-search function

| << (0x40) On the one / on a

> > | (0x43) Next / next station

9 Kind EQ Switch button, power-on defaults

EQ (0x07) normal-> BOOST-> treble-> POP-> ROCK-> CLASSIC-> JAZZ-

> DANCE-> R & P

- (0x15) Volume down

+ (0x09) Volume Up

0 TF / U The disk mode: numeric keys (after pressing the ejection port " IR0 \ n ")

(0x19) TF / U The disk mode: mode switching key song cycle (full circle - single cycle)

(0x0D) U plate/ TF Card fast switching

1-9 TF / U The disk mode: numeric keys (after pressing the ejection port " IRx \ n " , x representative 1-9)

1. in TF / U The disk mode, infrared remote control numeric keys 0-9 It has played selections (such as: Briefly press 111 , Later on, to jump

to the first 111 Songs played).