Bluetooth Design Guidelines

for FSC-BT803

Release R5

Revision	Data	History
1	11 SEP	Original publication of this document.
2	12 SEP	Update to the latest style guidelines.
3	20 OCT	Update to the latest Command/Indication List.
4	23 OCT	1.Add Bluetooth device address suffix to name. 2.Add AVRCP play status/element attributes indication. 3.Add BLE GATT Name Change function. 4.Add Incoming call name display function.
5	10 DEC	Update to the latest Command/Indication List.

Introduction：

FSC-BT8XX is the Bluetooth module of Dual-Mode series, which developed by Feasycom. It fully complies with Bluetooth specification version V2.0 /V2.1/V3.0/V4.0.

FSC-BT8XX integrates RF, Baseband controller, flash, etc., as a completed Bluetooth subsystem, in an ultra small package. It supports A2DP, AVRCP, HFP, MAP, PBAP, SPP and LE profiles. The user can easily integrate it into his/her applications.

FSC-BT8XX can be programming through UART port. This document describes the AT commands set supported by FSC-BT8XX module.

All the Comands Start with AT and end with /r/n.

Command format：

The extend Feasycom AT command line has following syntax:

AT + CMD NM PR <CR><LF>

AT+ is command line prefix

CMD is basic command

NM is the amount of following parameter

PR is parameter

If an extend command has been processed, result code”CMD@ [00] <CR><LF> is sent from the module to the host.

If an extend command is not accepted by the module, result code”CMD@ [01] <CR><LF> is sent to the host.

Indication format：

Indication is originated by the module and sent to the host. The extended Feasycom AT command indication has following syntax:

IND[PR] <CR><LF>

Here:

IND is basic indication

PR is Parameter

Inquiry Command Table

Command	Description

QA	Function	Query Local Device Name
	Example	AT+QA00\r\n
	Response	QA#[Feasycom]
QB	Function	Query Local Device Pin
	Example	AT+QB00\r\n
	Response	QB#[0000]
QC	Function	Query Local Device Paired List
	Example	AT+QC00\r\n
	Response	QC#[1F41BA1CE7B6FiPhone] QC#[264A76948397FHTC Desire] QC#[FFFFFFFF]
QD	Function	Query Firmware Version
	Example	AT+QD00\r\n
	Response	QD#[20131028]
QE	Function	Query Local Bluetooth Address
	Example	+QE00
	Response	QE#[001304870009]
AT	Function	Synchronous instruction
	Example	+AT00
	Response	AT@[00]

Control Command Table 1

Command	Description	
XA	Function	Power On
	Example	AT+XA00

	Response	XA@[00] DEV[00:01]
XB	Function	BR/EDR Enter Pairing Mode
	Example	AT+XB00
	Response	XB@[00] DEV[01:02]
XC	Function	BR/EDR Leave Pairing Mode
	Example	AT+XC00
	Response	XC@[00] DEV[02:01]
XF	Function	Empty Paired Device List
	Example	AT+XF00
	Response	XF@[00]
XG	Function	Reset Module
	Example	AT+XG00
	Response	XG@[00] // Now module going to reset.
XI	Function	Change Baud Rate
	Example	AT+XI012 //Change Baud rate to 38400, Refer to Baud Rate Table
	Response	No Response //
QA	Function	Change Local Device Name
	Example	AT+QA08Feasycom
	Response	QA#[00]
QB	Function	Change Local Device Pin
	Example	AT+QB04 1234
	Response	QB#[00]

Baud Rate Table

Index	0	1	2	3	4	5	6	7	8
Baud Rate	9600	19200	38400	57600	115200	230400	460800	921600	1382400

Control Command Table 2

Handsfree Command	Description	
HA	Function	Connect HFP

	Example	AT+HA00
	Response	HA@[00] DEV[01:02]
HB	Function	Disconnect HFP
	Example	AT+HB00
	Response	HB@[00] DEV[03:01]
HC	Function	Call Dial
	Example	AT+HC05 10086
	Response	HC@[00] DEV[03:04]
HE	Function	Call Answer
	Example	AT+HE00
	Response	HE@[00] DEV[05:07]
HF	Function	Call Reject
	Example	AT+HF00
	Response	HF@[00] DEV[04:03]
HG	Function	Call Terminal
	Example	AT+HG00
	Response	HG@[00] DEV[07:03]
HH	Function	Call Redial
	Example	AT+HH00
	Response	HH@[00] DEV[03:04]
HK	Function	Remote device Bluetooth signal strength get
	Example	AT+HK00
	Response	HK@[00] RSI[F1]

Control Command Table 3

AVRCP Command	Description	
AA	Function	Music Play/ Pause

	Example	AT+AA00
	Response	AA@[00]
AB	Function	Music Play/ Pause (Same as +AA)
	Example	AT+AB00
	Response	AB@[00]
AC	Function	Music Stop
	Example	AT+AC00
	Response	AC@[00]
AD	Function	Music Skip Forward
	Example	AT+AD00
	Response	AD@[00]
AE	Function	Music Skip Backward
	Example	AT+AE00
	Response	AE@[00]
AF	Function	Music Play Information Get
	Example	AT+AF00
	Response	AF@[00] AF#[00015D3B000353D6]
AO	Function	Volume +
	Example	AT+AO00
	Response	AO@[00]
AF	Function	Volume -
	Example	AT+AP00
	Response	AP@[00]

Control Command Table 4

MAP Command	Description	
MA	Function	MAP Connect
	Example	AT+MA00
	Response	MA@[00] MAP[01:02]
MB	Function	MAP Disconnect
	Example	AT+MB00
	Response	MB@[00] MAP[02:01]
MC	Function	MAP Message Get
	Example	AT+MC04 1001
	Response	MC@[00] MC#[FN04 TonyN04 TonyC0F Hello Bluetooth]

		MC#[FFFFFFFF]

Control Command Table 5

BLE GATT Command	Description	
GA	Function	BLE GATT Connect
	Example	AT+GA00
	Response	GA@[00] BLP[01:02]
GB	Function	BLE GATT Disconnect
	Example	AT+GB00
	Response	GB@[00] BLP[02:01]
GC	Function	BLE GATT Data Send
	Example	AT+GC10ABCDEFG1234567890
	Response	GC@[00]

Control Command Table 6

SPP Command	Description	
SC	Function	SPP Data Send
	Example	AT+SC10ABCDEFG1234567890
	Response	SC@[00]
SD	Function	Enter SPP Data transparent transmission mode(BT -> MCU)
	Example	AT+SD00
	Response	SD@[00]
SD	Function	Exit SPP Data transparent transmission control
	Example	AT+SE00
	Response	SE@[00]

Control Command Table 7

Sleep Mode Command	Description

TA	Function	Enter sleep mode
	Example	AT+TA00
	Response	TA@[00] SLP[00:01] //BT Module will sleep while not receiving RX data in a sencond
TB	Function	Exit sleep mode
	Example	AT+TB00
	Response	TB@[00] SLP[01:00]

Indication Table 1

Status Indication	Description
< DEV [old :new] >	Power /Pair Mode Status 00:Limbo (module unavailable) 01: Power On (module available,BR/EDR connectable) 02:Paring (module available,BR/EDR pairing/connectable)
< HFP[old : new] >	HFP Status 00:Initializing 01: Ready 02:Connecting 03:Connected 04:Out going Call 05:Incoming call 06:active call (audio routed to module) 07:active call (audio routed to phone)
< ARC[old : new] >	AVRCP Status 00:Initializing 01: Ready 02:Connected
< MAP[old : new] >	MAP Status 00:Initializing 01: Ready 02:Connected
< BLP[old : new] >	Bluetooth LE Peripheral Status 00:Initializing 01: Ready

	02:Connected
< SPP [old : new] >	SPP Status 00:Initializing 01:Ready 02:Connecting 03:Connected
< Sleep[old : new] >	Sleep Status 00:Exit Sleep Mode 01:Enter Sleep Mode

Indication Table 2

Other Indication	Description	
< PIR[State] >	Meaning	Pair Status
	State	00：Pair Successful 01： Pair Failed
< BIN[length payload] >	Meaning	Data received via BLE GATT
	Length	4 bytes of hex string
	Payload	length bytes of data received
	Example	<BIN[000512345]> : received data “ 12345” ,length is 5 bytes.
< SIN[length payload] >	Meaning	Data received via SPP
	Length	4 bytes of hex string
	Payload	length bytes of received
	Example	<SIN[000512345]> : received data “ 12345” ,length is 5 bytes.
<MHD[Handle]>	Meaning	Handle of new message arrived via MAP
	Handle	0~16 bytes of hex string
< MSG [FN Length 1 Payload 1 N Length 2 Payload 2	Meaning	Message received via MAP
	FN	Start of Friendly name
	Length 1	Length of Friendly name,2 bytes hex string
	Payload 1	Friendly name
	N	Start of Name
	Length 2	Length of Name,2 bytes hex string
	Payload 2	Name

C Length 3 Payload 3] >	C	Start of Content
	Length 3	Length of Content,4 bytes hex string
	Payload 3	Content
	Example	<MSG[FN04 TonyN08TonyWangC000F Hello Bluetooth]> Means module get a message from Tony Wang,Content is “Hello Bluetooth”
< MSG[FFFFFFFF] >	Meaning	End indication of a MAP Message.
< VER[Version] >	Meaning	Current Software Version
	Version	8 bytes of hex string
< CID[length Number] >	Meaning	Call number via HFP
	length	2 bytes of hex string
	Number	length bytes of decimal string
< CIE[length Name] >	Meaning	Call name via HFP
	length	2 bytes of hex string
	Name	length bytes of data received
< NAM[length Address Name] >	Meaning	Device name/address connected via HFP
	length	12 bytes hex string (address) + name length
	Address	12 bytes hex string
	Name	UTF8 code
< ARD[Status] >	Meaning	Music play status
	Status	00:Stoped 01:Playing 02:Paused FF:Error
< ARE [Index Length Payload] >	Meaning	Music play attribute
	Index	0:Name 1: Singer 2:Album
	Length	2 bytes hex string
	Example	<ARE[10ECake-Long Time]> <ARE[204Cake]> <ARE[316Showroom of Compassion]>
<ARE[FFFFFFFF]>	Meaning	End indication of Music attribute
< ARF[Elapsed Length] >	Meaning	Music Play elapsed time/total time.
	Elapsed	8 bytes hex string (milliseconds)
	Length	8 bytes hex string (milliseconds)
<ARG>	Meaning	Music Track Changed

<RSI [Strength] >	Meaning	Bluetooth Signal Strength of Remote Device
	Strength	2 byes hex string,from 00 ~ FF

Hi, Teddy：

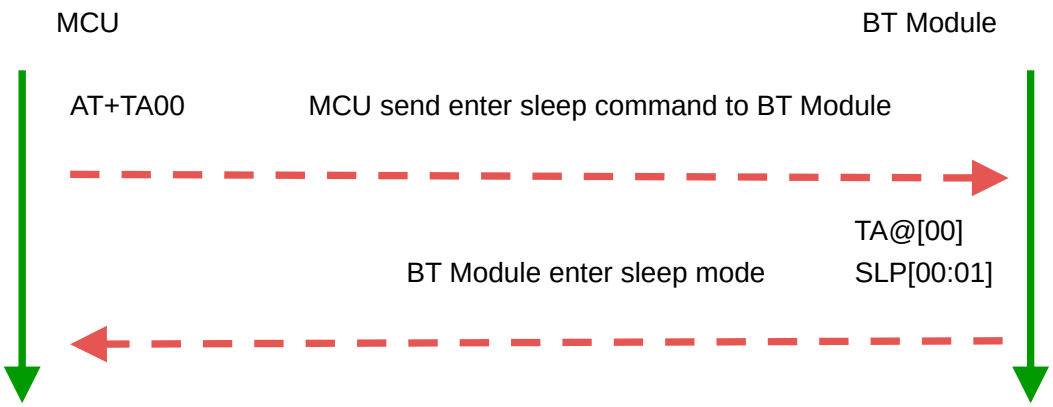
PIO3 蓝牙输出口是，用来唤醒 MCU 的

PIO11 是蓝牙输入口，MCU 用来唤醒 8670 的。

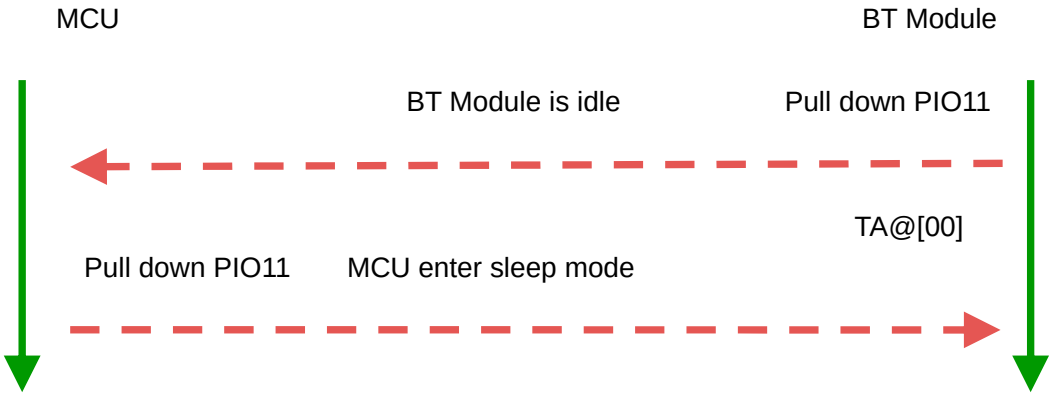
PIO Function Table

PIO	Description	
PIO11	Function	MCU Sleep status IO(MCU -> BT)
	Example	If MCU enter sleep mode, PIO11 should be pulled down
	Response	BT module will not send data to MCU while PIO11 is low
PIO3	Function	MCU Wake up IO(BT -> MCU)
	Example	Before sending data to MCU, BT module will pull up PIO3
	Response	While receiving PIO3 pulling up, MCU should pull up PIO11 to allow BT Module to send data

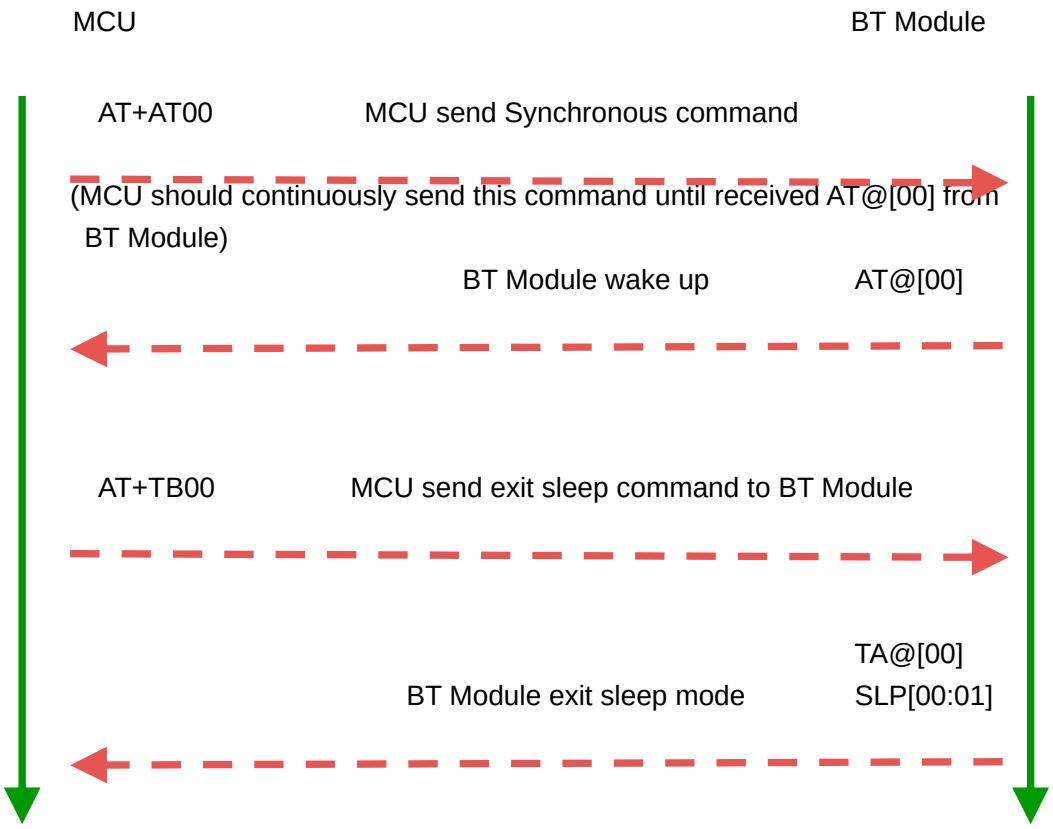
Enter Sleep Mode1: BT Module enter sleep mode



Enter Sleep Mode1: MCU enter sleep mode



Exit Sleep Mode 1: MCU wake up BT Module



Exit Sleep Mode 2: BT Module wake up MCU