

FSC-BT401/405
UART Programming User Guide
V1.5.3

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1. Introduction

FSC-BT401/BT405 is a small form factor and highly economic Bluetooth radio module(class 1 or class 2) that allows OEM to add wireless capability to their products. The module supports multiple interfaces that make it simple to design into fully certified embedded Bluetooth solutions.

With Feasycom's AT command programming interfaces, designers can easily customize their applications to support different Bluetooth profiles, such as SPP, DUN, HID, and etc. class1 module supports Bluetooth® Enhanced Data Rate (EDR) and delivers up to 3 Mbps data rate for distances up to 100 meters with its integrated chip antenna, class 2 module supports 3Mbps data rate Transmission for distances up to 10 meters with its integrated chip antenna.

The module is an appropriate product for designers who want to add wireless capability to their products. This document describes AT command set supported by FSC-BT401/BT405.

2. Description

2.1 Definitions

- ❖ {}: Content between {} is optional
- ❖ H : Content coming next is from HOST to BT405
- ❖ B : Content coming next is from BT405 to HOST

2.2 Command Syntax

Format: AT+Command[=Param1{,Param2...}]<CR><LF>

Restrictions:

- ❖ All commands must begin with 'AT', end with <CR><LF>
- ❖ <CR> is short for Carriage-Return(Hexadecimal:0x0D)
- ❖ <LF> is short for Line-Feed(Hexadecimal:0x0A)
- ❖ Parameters must follow behind '=' if exist
- ❖ Parameters must be separated by ','
- ❖ BT405 will response OK/ERROR for each command

Example:

1.Query Device Name:

```
H:AT+NAME<CR><LF>
B:<CR><LF>+NAME=Feasycom<CR><LF>
B:<CR><LF>OK<CR><LF>
```

2.Modify Device Name to 'ABC':

```
H:AT+NAME=ABC<CR><LF>
B:<CR><LF>OK<CR><LF>
```

3. Command Table

3.1 Common Command Table

AT+NAME{=Param1} : Query/Modify Device Name
Response: +NAME=Param1
Param1: Device Name (1~31 Bytes ASCII)
Description: Query Device Name if parameter omitted, or change Device Name using rules above
<p>Example1: Query Device Name</p> <p>H: AT+NAME</p> <p>B: +NAME=XYZ</p> <p>B: OK</p> <p>Example2: Modify Device Name to 'ABC'</p> <p>H: AT+NAME=ABC</p> <p>B: OK</p>
AT+PIN{=Param1} : Query/Modify Device Pin Code
Response: +PIN=Param1
Param1: Device Pin Code (4~15 Bytes ASCII)
<p>Example1: Query Device Pin Code</p> <p>H: AT+PIN</p> <p>B: +PIN=0000</p> <p>B: OK</p> <p>Example2: Change Device Pin Code to '12345678'</p> <p>H: AT+PIN=12345678</p> <p>B: OK</p>
AT+ADDR: Query Device MAC Address

<p>Response: +ADDR=Param1</p>						
<p>Param1: Device MAC Address (12 Bytes ASCII)</p>						
<p>Example: Query Device MAC Address H: AT+ADDR B: +ADDR=DC0D30123456 B: OK</p>						
<p>AT+BAUD{=Param1}: Query/Modify Device Baudrate</p>						
<p>Response: +BAUD=Param1</p>						
<p>Param1: Device Baudrate (2400/4800/9600/19200/38400/57600/115200/230400/256000/460800/512000/921600)</p>						
<p>Description: The HOST's baudrate must be modified synchronously after this command sent</p>						
<p>AT+PLIST{=Param1}: Query/Delete Paired Record</p>						
<p>Response1: +PLIST={ Response2: +PLIST=Param2, Param3 Response3: +PLIST=}</p>						
<p>Param1: (0/1~8/12 Bytes MAC)</p> <table border="1" data-bbox="239 1411 1380 1545"> <tr> <td>(0)</td> <td>Delete All Paired Records</td> </tr> <tr> <td>(1~8)</td> <td>Delete One Paired Record of Specified Index</td> </tr> <tr> <td>(MAC)</td> <td>Delete One Paired Record of Specified MAC Address</td> </tr> </table> <p>Param2: Index of Record (1~8) Param3: MAC Address of Remote Device (12 Bytes ASCII)</p>	(0)	Delete All Paired Records	(1~8)	Delete One Paired Record of Specified Index	(MAC)	Delete One Paired Record of Specified MAC Address
(0)	Delete All Paired Records					
(1~8)	Delete One Paired Record of Specified Index					
(MAC)	Delete One Paired Record of Specified MAC Address					
<p>Example1: Query Paired Record H: AT+PLIST B: +PLIST={ +PLIST=1,1C5CF226D773 +PLIST=2,A0BC30075421 +PLIST=} B: OK</p> <p>Example2: Clear Paired Record</p>						

H: AT+PLIST=0
B: OK

AT+SCAN{=Param1{,Param2{,Param3}}}: Scan Nearby Device

Param1: Scan Operation (0/1)

(0)	Stop
(1)	Start

Param2: Scan Period (1~48). Unit: 1.28s, scan 12.8s by default

Param3: Scan Filter (1~31 Bytes ASCII). If set, only device whose name same to filter will be displayed

Description: Refer to Indication Part for Scan Result

Example: Scan nearby BR/EDR device whose name is 'Feasycom' for 6.4 seconds

H: AT+SCAN=1,5,Feasycom
B: OK
+SCAN{
+SCAN=1,DC0D30000003,-32,8,Feasycom
+SCAN=2,DC0D30000044,-64,8,Feasycom
+SCAN=3,DC0D30000097,-47,8,Feasycom
+SCAN}

AT+MODE{=Param1}: Query/Modify Module BOOT Mode

Response: +MODE=Param1

Param1: Boot Mode (1/2)

(1)	SPP
(2)	HID

Description: Module could work with different combinations of profiles if Boot Mode changed.

Example1: Query Boot Mode

H: AT+MODE
B: +MODE=1
B: OK

Example2: Modify Boot Mode to HID Mode

H: AT+MODE=2

B: OK
AT+REBOOT: Device Reboot
<i>Description:</i> Reboot Device Manually
AT+RESTORE: Restore to Default Settings
<i>Description:</i> Restore to Default Settings and Reboot

3.2 SPP Command Table

AT+SPPCONN{=Param1}: Create SPP Connection to Remote Device
<i>Param1:</i> MAC Address of Remote Device (12 Bytes ASCII)
<i>Description:</i> Reconnect to last paired device if parameter not exist or connect to device with specified MAC Address
<p><i>Example1:</i> Reconnect to last paired device</p> <p>H: AT+SPPCONN</p> <p>B: OK</p> <p><i>Example2:</i> Connect to specified device by MAC address</p> <p>H: AT+SPPCONN=1C5CF226D773</p> <p>B: OK</p>
AT+SPPDISC: SPP Disconnect with Remote Device
<i>Description:</i> Disconnect SPP connection with remote device
AT+SPPSEND=Param1,Param2: Transfer Data Via SPP
<p><i>Param1:</i> Payload size</p> <p><i>Param2:</i> Payload</p>

<i>Description: Only effective when throughput mode disabled</i>
<p>Example: Send "1234567890" to remote device via SPP</p> <p>H: AT+SPPSEND=10,1234567890</p> <p>B: OK</p>

3.3 HID Command Table

AT+HIDCONN{=Param1} : Create HID Connection to Remote Device
Param1: MAC Address of Remote Device (12 Bytes ASCII)
<i>Description:</i> Reconnect to last paired device if parameter not exist or connect to device with specified MAC Address
<p>Example1: Reconnect to last paired device</p> <p>H: AT+HIDCONN</p> <p>B: OK</p> <p>Example2: Connect to specified device by MAC address</p> <p>H: AT+HIDCONN=1C5CF226D773</p> <p>B: OK</p>
AT+HIDDISC : HID Disconnect with Remote Device
<i>Description:</i> Disconnect HID connection with remote device
AT+HIDSEND=Param1,Param2 : Transfer Data Via HID
<p>Param1: Payload size</p> <p>Param2: Payload</p>
<i>Description:</i> Only effective when throughput mode disabled
<p>Example: Send "1234567890" to remote device via HID</p> <p>H: AT+HIDSEND=10,1234567890</p> <p>B: OK</p>

AT+HIDOSK: Open/Close On-Screen Keyboard

Description: This Command Could Open/Close remote device's On-Screen Keyboard when HID link is created. Currently, it's only react on iOS.

Example: Open/Close remote device's On-Screen keyboard

H: AT+HIDOSK

B: OK

4. Indication Table

+SPPSTAT=Param1: SPP State Changed

Param1: (0/1/2/3)

(0)	Uninitialized
(1)	Standby
(2)	Connecting
(3)	Connected

+HIDSTAT=Param1: HID State Changed

Param1: (0/1/2/3)

(0)	Uninitialized
(1)	Standby
(2)	Connecting
(3)	Connected

+SPPDATA=Param1, Param2: Data Received Via SPP

Param1: Payload Length

Param2: Payload

Example: Received data "1234567890" via SPP
B: +SPPDATA=10,1234567890

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