



# **DX-CP34**

## **Bluetooth Host Serial Port application Guide**

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## Updated records

Version	Date	Instructions	Author
V1.0	2022/12/11	Initial version	SML
V1.1	2023/05/12	Optimization instructions	SML
V2.0	2023/08/20	Optimized air rate rating	SML

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# 1. Introduction

## 1.1. Overview

CP34 is an integrated bluetooth (BLE) and low power consumption LoRaWAN communication function of the terminal equipment, mainly used for scanning, collect around BLE devices (iBeacon, Eddystone UID and ordinary BLE radio equipment) of the information, and uploaded to the cloud in LoRaWAN network server. LoRaWAN agreement on equipment, which can access to the existing LoRaWAN network, without relying on operator network, only the power supply and gateways can be deployed within 3 km. The deployment threshold of the whole monitoring and acquisition network is reduced.



## 1.2. A serial port basic parameters

- Default parameters of module serial port: 9600bps/8/n/1 (baud rate/data bit/no check/stop bit)
- BLE module UUID: SERVICE UUID : 6e400001-b5a3-f393-e0a9-e50e24dcca9e  
NOTIFY/WRITE UUID: 6e400003-b5a3-f393-e0a9-e50e24dcca9e  
WRITE UUID : 6e400002-b5a3-f393-e0a9-e50e24dcca9e

# 2. CP34 parameter configuration example

- There are two different ways to CP34 parameter configuration. According to the actual needs, choose one of the configuration methods

## 2.1. Mobile phone APP configuration CP34

Please users to download the application market DX - to set SMART APP, setting process as shown in the figure below:

- **Confirmation of OTAA network parameters:**

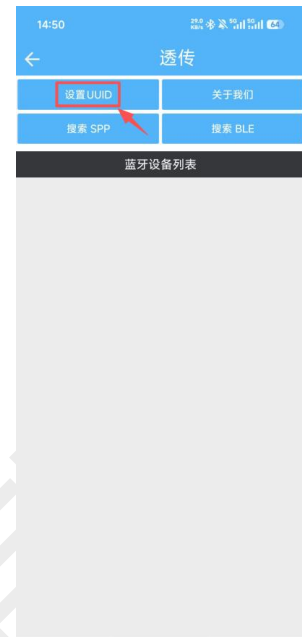
Operation after the connection is successful, referring to the following figure, in turn, send the following order: AT+DEVADDR、AT+APPEUI、AT+APPKEY



**Figure 1: open the DX -  
SMART APP**



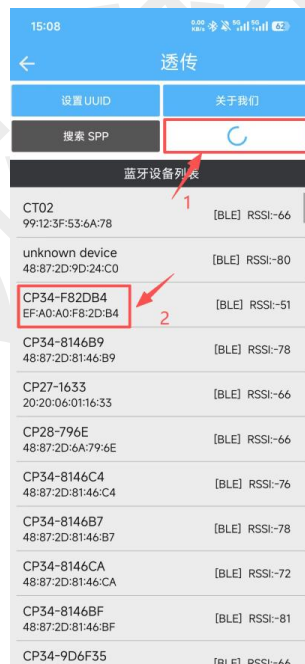
**Figure 2: click on the  
passthrough**



**Figure 3: Click Set UUID**



**Figure 4: set the UUID as  
above**



**Figure 5: click on the search  
BLE, find module**



**Figure 6: Connect  
successfully concurrent  
instructions**

## 2.2. CP34 computer serial port tool configuration

Using the type - c cable connected to the CP34, press the power button, open the sscom5.13.1 serial port tool, select the corresponding COM port, serial port parameters by default is set to 9600 BPS / 8 / n / 1 (baud rate/data/no calibration/stop bit), need to pay attention to the AT command without end, A serial port tools don't need to add carriage returns. And then send commands, such as query APPEUI, send command AT + APPEU:

- **OTAA net parameters confirmed:**

In turn, send the following command: AT + DEVADDR, AT + APPEUI, AT + APPKEY

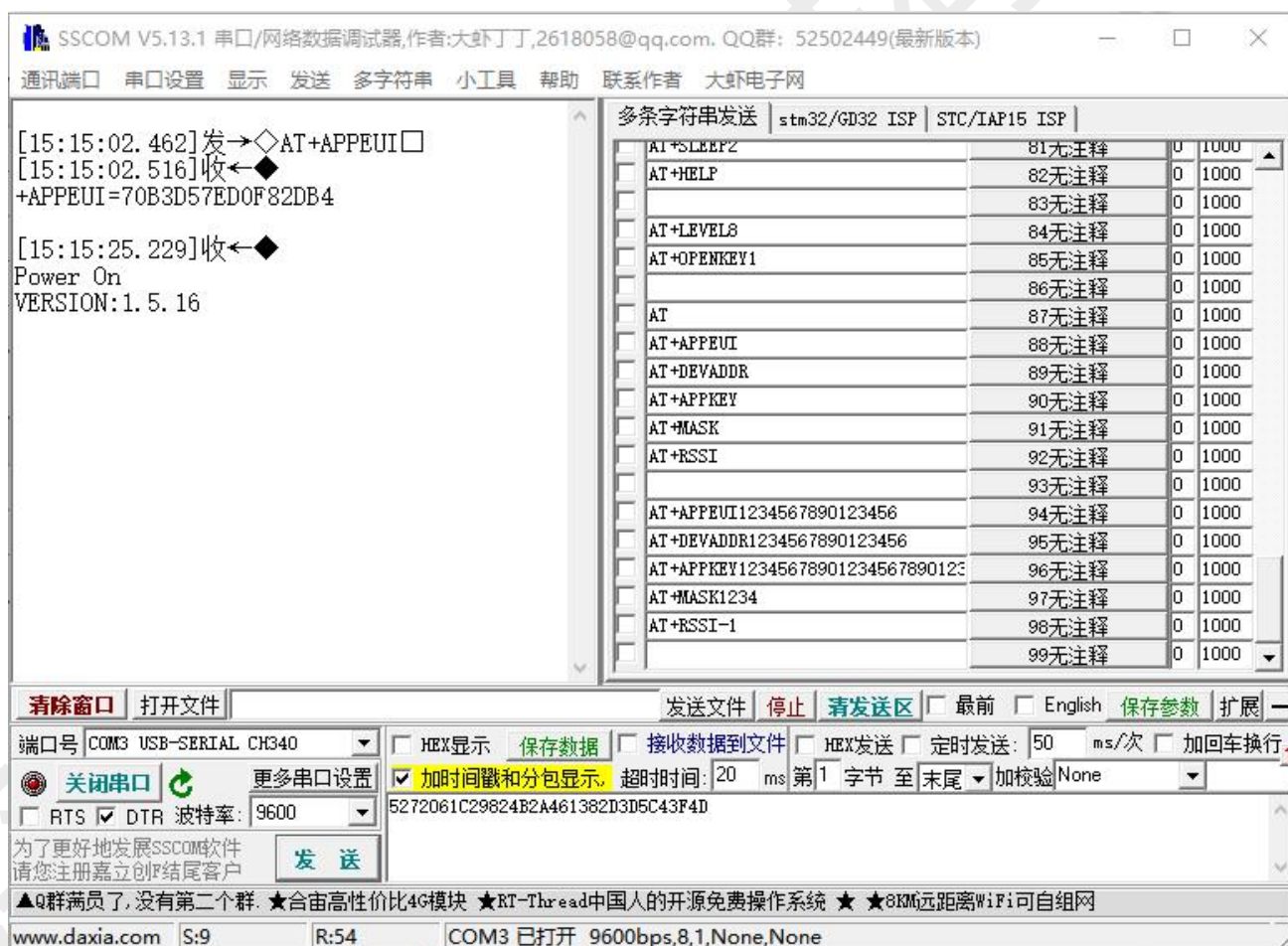


Figure 7: Computer serial port demonstration diagram

## 3. Detailed explanation of relevant AT commands

### 3.1. Command format specification

AT+Command<param1, param2, param3>

- All instructions are in the AT the beginning, end with instruction content
- All AT command characters are in uppercase English
- < > for optional parameters, if there are multiple parameters in command, to comma ", "separate each parameter, and does not include the brackets in actual command
- Instruction execution is successful, returns the corresponding command ends with a OK, failure return ERROR = < >, "< >" content for the corresponding ERROR code (see 5.3).
- All the AT command end without end

### 3.2. Response format specification

+ Indication < = param1, param2, param3 > < CR > < LF >

- Response information to a plus sign "+", < CR > < LF > end
- The equals sign "=" is followed by the response parameters
- When the response contains multiple arguments, use comma ", "space between each parameter

### 3.3. The AT command for example

Example: APPEUI modified equipment

Send: AT+APPEUI1234567890123456

Returns: +APPEUI=1234567890123456

OK



### 3.4. List of AT commands

Instructions	Functions	instructions
AT	Test instructions	-
AT+DEVADDR	Set DEVEUI	Default value: 70 B3 D5 7E D0 + bluetooth MAC address after three
AT+APPEUI	Set APPEUI	Default: 70 B3 D5 7E D0 + 3 bits after Bluetooth mac address
AT+APPKEY	Set APPKEY	Default value: 52 72 06 1C 29 82 4B 2A 46 13 82 D3 D5 C4 3F 4D
AT+MASK	Set the spectrum mask	4 bytes
AT+RSSI	Set the filtered RSSI value	- 1 ~ - 127

## 4. AT command details

### 4.1. Basic instructions

#### 4.1.1. Test instruction

Function	Instructions	The response	instructions
Testing	AT	OK	

## 4.2. A serial port parameters (into the OTAA)

### 4.2.1. Set \ query - DevEUI

function	Instructions	The response	instructions
Query DevEUI	AT+DEVADDR	+DEVADDR= <devaddr>	<devaddr> : DevEUI Default: 70 B3 D5 7E D0 + 3 bits after Bluetooth mac address
Set DevEUI	AT+DEVADDR<devaddr>	+DEVADDR= <devaddr> OK	

#### Notes:

1. DevEUI: The unique identifier of the device connected to the network by OTAA, the data format is expressed in hexadecimal, with 8 bytes (Y1Y2... Y8)
2. Setup instructions require a restart to take effect

### 4.2.2. Settings \ Query -appeui

function	Instructions	Response	Instructions
Querying APPEUI	AT+APPEUI	+APPEUI= <appeui>	<appeui> : AppEUI Default value: 70 B3 D5 7 e D0 + bluetooth MAC address after three
Set APPEUI	AT+APPEUI<appeui>	+APPEUI= <appeui> OK	

#### Notes:

1. AppEUI: OTAA into the application of a unique identifier, expressed in hexadecimal data format, a total of 8 bytes (Y1Y2... Y8)
2. Setup instruction need to restart to take effect

### 4.2.3. Set \ query -appKey

Features	Instructions	Response	Instructions
Query AppKey	AT+APPKEY	+APPKEY= <appkey>	<appkey> : AppKey Default:
Set the AppKey	AT+APPKEY<appkey>	+APPKEY= <appkey> OK	52 72 06 1C 29 82 4B 2A 46 13 82 D3 D5 C4 3F 4D

#### Notes:

1. AppKey: The application key of OTAA access to the network, the data format is expressed in hexadecimal, a total of 16 bytes (Y1Y2... Y16)
2. Setup instructions need to be restarted to take effect

### 4.2.4. Set \ query - spectrum mask

function	Instructions	The response	Instructions
Query the band mask	AT+MASK	+MASK= <mask>	The < mask > : frequency group of mask
Set the spectrum mask	AT+MASK<mask>	+MASK= <mask> OK	Default value: 0040

#### Notes:

1. Band mask: Used to control which FSB or channel is enabled and consists of four hexadecimal numbers
2. When the band mask is represented as a binary value, each bit represents whether a subband is enabled or not (1 = enabled, 0 = disabled)
3. Calculation: (in China 470-510 MHZ FSB 11, for example)  
Only enabled FSB11, namely the 11th value is 1, the mask is 0000010000000000, converted to hexadecimal, that is, 0400
4. Frequency planning for the EU in 863-870 MHZ, spectrum mask is 0001 by default
5. Setup instruction need to restart to take effect

## Set \ Query - filtered RSSI values

Features	Instructions	Response	instructions
Query the filtered RSSI value	AT+RSSI	+RSSI= <rss>	<rss> : RSSI filtering threshold
Set the filtered RSSI value	AT+RSSI<rss>	+RSSI= <rss> OK	Default: -50 Range: -1 to -127

### Notes:

1. Used to set the scanning signal strength filtering threshold. CP34 only the RSSI is greater than the threshold BLE equipment data

For example, is set to - 50, CP34 only acquisition RSSI > - 50 DBM BLE equipment data

2. The setup instruction needs to be restarted to take effect

## 4.3. List of error codes

The ERROR code in ERROR=<> has the following details:

Return value	Error Message Description
104	Invalid instructions
105	Invalid parameters
106	Other errors

# 5. Value-added services

In order to meet the various functional requirements of customers, our company can provide the following technical value-added services:

- Module program customization, such as: IO function port customization, AT instruction customization, etc.
- Module PCB hardware customization, can be customized to the hardware requirements of customer needs.



- A variety of program customization, can be customized according to customer needs, a full set of software and hardware solutions.
- A full set of networking solutions customization, can be customized according to customer needs, a full set of networking, gateway solutions.

If you have the above customized requirements, please contact our business personnel directly.