HM-15 V530 Self-Learning Function Introduction

The communication of BLE is based on the UUID and properties of UUID to be accomplished. However, the manufacturer generally created their own unique UUID, which means it would be unable tocommunicate between different UUIDs. In order to solve thecommunication challenge, the HM-15 added the new self-learning feature.

1. **What kind of modules can use the new self-learning feature of V530?**

   The new learning function can help with the communication of your BLE devices automatically when your devices using with all following satisfying using requirements. With the following conditions the self-learning feature of HM-10/11 can be sued, otherwise cannot.

   NOTE: Normally, the UUID data can be accessed by using LightBlue tools, or you can ask the BLE device provider directly.

1.1 While your current BLE device is using 16Bit UUID to implement communication such as 0xFFe0, the new feature can be used.

1.2 While the transmit-receive UUID of the characteristic of your current BLE device is only one (as shown in figure 1.1) or only tow (as shown in figure 1.2)

Figure 1.1. only one UUID

Figure 1.2. two UUIDs

1.3 If your current BLE device is slave device, you should use HM-10/11 as the master device.

2. How to use V530 self-learning function

2.1 Configuration Process

2.1.1 AT+RENEW à Restore to factory defaults (HM-15 should be plugged in and unplugged when you do this step).

2.1.2 AT+IMME1 à Set the HM-15 under manual operation mode

2.1.3 AT+COMP1 à Turn on HM-15 self-learning function

2.1.4 AT+UUID0x1234 à This 0x1234 is the characteristic of your current BLE slave module which include Write property or Write-Without-Response propertyof UUID.

2.1.5 AT+CHAR0x5678 à This 0x5678 is the characteristic of your current BLE slave module which is Notify property of UUID.

NOTE: If there is only one single UUID of Characteristic of your current BLE module which the UUID simultaneously integrate Write, Write-Without-Response and Notify, you can set up the same UUID of AT+UUID and AT+CHAR.

2.1.6 AT+SHOW1 à Only you would like to back to the BLE slave modulename when you are searching, please execute this command. This is an optional command.

2.1.7 AT+ROLE1 à Set up HM-15 to main mode (HM-15 should be plugged in and unplugged when you do this step).

2.1.8 The Configuration Process complete. This process only need to set up once.

2.2 Searchingand Connecting Process

2.2.1 AT+DISC? à Execute the command

2.2.2 Receive OK+IDSCS à Start searching

2.2.3 Receive OK+DIS<P1>:<P2> à Find the returned value of one device.

P1: Device type. The possible values: are 0, 1, 2.

P2: MAC address of device. Format: 00112233445566

2.2.4 Receive OK+DISCE à Searching completed

2.2.5 Use the command 'AT' which in AT+CO<P1><P2> to try to connect the found device

2.2.6 Receive OK+CO<P1><P1><P3>,the 'start connecting command'.

P1: Device Type

P3: Connection Status. A: Accepting Request, Starting Connecting. E: Invalid Address

2.2.7 Receive the return information from the connection results OK+CONN or OK+CONNF

OK+CONN à Connection Succeed

OK+CONNF à Connection fail

2.2.8 Communication starts, Transceiver Data

2.2.9 Communication complete. Send 'AT' for disconnected

NOTE1:If you turn on the self-learning function, there will no impact on the communication between any other BLE products of HM series.

NOTE2:If you have the device type and MAC address, you could ignore the searching steps and directly use 'AT+CO' command to do the connection.

NOTE3: After configuration, you also could use 'AT+IMMEO' to get the HM-15 working in automatic mode.

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