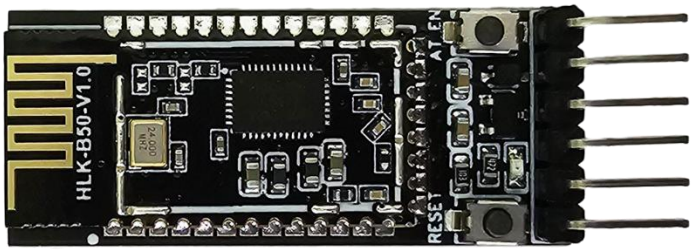
HLK-B50 TTL Bluetooth Module



Description:

ADIY HLK-B50 TTL is a BLE5.0 dual-mode Bluetooth-serial port transparent transmission module, which can support Bluetooth SPP and GATT transparent transmission at the same time. Various devices with serial ports can be easily and quickly transmitted through this module. Send and receive data wirelessly using Bluetooth.

Features:

1. Wide operating voltage 3.5~6V.
2. Built-in 32-bit ARM Cortex M3 core, the main frequency can reach 48MHz.
3. Fast and stable Bluetooth-serial port transparent transmission, the serial port baud rate can reach 921600 by default 115200 baud rate.
4. Master-slave integrated Bluetooth BLE 5.0 can be set as master or slave mode, support binding encryption.
5. Dual-mode Bluetooth, data can be transparently transmitted through GATT or SPP, and can be connected at the same time.
6. Built-in Watchdog, reliable operation for a long time.

Working:

The working mode of the module (transparent transmission and AT command mode)

HLK-B50 module has Transparent mode and AT command mode Two working states. In the AT command mode, you can send AT commands to the module through the serial port to query and set the parameters of the module. In the transparent transmission mode, the module will perform two-way transparent transmission of serial port data and Bluetooth connection data. When the module starts, the default is transparent transmission mode. Exit the transparent transmission mode and enter the AT mode, which will not affect the Bluetooth connection status. The serial port-Bluetooth data transparent transmission is suspended, and the data received by the serial port is processed by the current AT command; after the transparent transmission is resumed, the data transparent transmission will continue. In the transparent transmission mode, the 9th pin PC7 is input with a short low level (0.5~3s), and the module will exit the transparent transmission and switch to the AT command mode. In AT command mode, send AT+TS=1 command to exit AT command mode and return to transparent transmission mode. The conversion logic between transparent

HLK-B50 AT Commands:

SL No.	Command Name	Illustrate	Parameter Range	Example
1	**VER**	software version number	read only	send: AT+VER=? / answer: AT+VER=1.03(20092421) OK
2	**MAC**	MAC address	read only	send: AT+MAC=? / answer: AT+MAC=112233445501 OK
3	**DEFAULT**	restore default configuration	1	send: AT+DEFAULT=1 / answer: AT+DEFAULT=1 OK
4	**REBOOT**	restart module	1	send: AT+REBOOT=1 / answer: AT+REBOOT=1 OK
5	**TS**	Restore transparent transmission mode	1	send: AT+TS=1 / answer: AT+TS=1 OK

<table>
<tr><td>6</td><td>name</td><td>module bluetooth name</td><td>Up to 18 characters
Defaults:
HLK_B50_****_LE</td><td><table><tr><td>send</td><td>answer</td></tr><tr><td>AT+NAME=?</td><td>AT+NAME=HLK_B50
OK</td></tr><tr><td>AT+NAME=ble_123</td><td>AT+NAME=ble_1234
OK</td></tr></table></td></tr>
<tr><td>7</td><td>BAND</td><td>serial port baud rate</td><td>1200, 2400, 4800, 9600, 14 400, 19200, 38400, 57600, 115200, 230400, 460800, 921600
Default: 115200</td><td><table><tr><td>send</td><td>answer</td></tr><tr><td>AT+BAND=?</td><td>AT+BAND=115200
OK</td></tr><tr><td>AT+BAND=230400</td><td>AT+BAND=230400
OK</td></tr></table></td></tr>
<tr><td>8</td><td>CONNI</td><td>Bluetooth connection interval</td><td>6~3200,
The unit is 1.25ms, that is,
7.5～ 4000 ms,
Default: 24
The smaller the sending and receiving, the faster the power consumption Large; the larger the sending and receiving, the slower the delay . The larger the value, the lower the power consumption.</td><td><table><tr><td>send</td><td>answer</td></tr><tr><td>AT+CONNI=?</td><td>AT+CONNI=24
OK</td></tr><tr><td>AT+CONNI=8</td><td>AT+CONNI=8
OK</td></tr></table></td></tr>
<tr><td>9</td><td>ADVI</td><td>Bluetooth broadcast interval</td><td>Unit 625us
Suggested value: 80, 160, 320, 800, 1600, 3200
Default: 800</td><td><table><tr><td>send</td><td>answer</td></tr><tr><td>AT+ADVI=?</td><td>AT+ADVI=800
OK</td></tr><tr><td>AT+ADVI=1600</td><td>AT+ADVI=1600
OK</td></tr></table></td></tr>
<tr><td>10</td><td>ADVDATA</td><td>customize broadcast data</td><td>Hexadecimal number, the number of characters is 2
Multiples of up to 52 hexadecimal number
Default: None</td><td><table><tr><td>send</td><td>answer</td></tr><tr><td>AT+ADVDATA=?</td><td>AT+ADVDATA=03FF1A1B
OK</td></tr><tr><td>AT+ADVDATA=68696C696E6B</td><td>AT+ADVDATA=68696C696E6B
OK</td></tr></table></td></tr>
<tr><td>11</td><td>ROLE</td><td>modular BLE role</td><td>1 slave
2 hosts
Default: 1</td><td><table><tr><td>send</td><td>answer</td></tr><tr><td>AT+ROLE=?</td><td>AT+ROLE=1
OK</td></tr><tr><td>AT+ROLE=2</td><td>AT+ROLE=2
OK</td></tr></table></td></tr>
<tr><td>12</td><td>ENCRYPT</td><td>Pair binding Enable</td><td>0 No pairing required
1 requires pairing and bonding
Default: 0</td><td><table><tr><td>send</td><td>answer</td></tr><tr><td>AT+ENCRYPT=?</td><td>AT+ENCRYPT=0
OK</td></tr><tr><td>AT+ENCRYPT=1</td><td>AT+ENCRYPT=1
OK</td></tr></table></td></tr>
</table>

<table>
<tr><td>13</td><td>PINCODE</td><td>pairing code</td><td>6-bit integer
Default value: 000000</td><td><table><tr><td>send</td><td>answer</td></tr><tr><td>AT+PINCODE=?</td><td>AT+PINCODE=000000
OK</td></tr><tr><td>AT+PINCODE=123456</td><td>AT+PINCODE=123456
OK</td></tr></table></td></tr>
<tr><td>14</td><td>SCANMODE</td><td>Connect in host mode scan mode</td><td>0 Connect by MAC address

1 Connect by Bluetooth name
Default: 0</td><td><table><tr><td>send</td><td>answer</td></tr><tr><td>AT+SCANMODE=?</td><td>AT+SCANMODE=0
OK</td></tr><tr><td>AT+SCANMODE=1</td><td>AT+SCANMODE=1
OK</td></tr></table></td></tr>
<tr><td>15</td><td>PEERMAC</td><td>module as host, automatically disconnect connected slave MAC address</td><td>MAC address, 12 hexadecimal numbers</td><td><table><tr><td>Send</td><td>Answer</td></tr><tr><td>AT+PEERMAC=?</td><td>AT+PEERMAC=AABBCC000001
OK</td></tr><tr><td>AT+PEERMAC=AABBCC000001</td><td>AT+PEERMAC=AABBCC000001
OK</td></tr></table></td></tr>
<tr><td>16</td><td>PEERNAME</td><td>module as host, automatically disconnect blue tooth name</td><td>Up to 18 characters</td><td><table><tr><td>Send</td><td>Answer</td></tr><tr><td>AT+PEERNAME=?</td><td>AT+PEERNAME=HLK_B50
OK</td></tr><tr><td>AT+PEERNAME=ble_1234</td><td>AT+PEERNAME=ble_1234
OK</td></tr></table></td></tr>
<tr><td>17</td><td>AUTHPWG</td><td>OTA and air distribution

Set access code</td><td>up to 8 characters
Default: HiLink</td><td><table><tr><td>Send</td><td>Answer</td></tr><tr><td>AT+AUTHPWG=?</td><td>AT+AUTHPWG=HiLink
OK</td></tr><tr><td>AT+AUTHPWG=68686868</td><td>AT+AUTHPWG=68686868
OK</td></tr></table></td></tr>
<tr><td>18</td><td>RECONNI</td><td>module as host, Bluetooth automatically reconnection interval</td><td>integer, unit s
0: means to try to connect only at startup
once, do not reconnect

1~60: Interval after disconnection Automatically reconnect after a specified number of seconds
Default: 5</td><td><table><tr><td>Send</td><td>Answer</td></tr><tr><td>AT+RECONNI=?</td><td>AT+RECONNI=0
OK</td></tr><tr><td>AT+RECONNI=10</td><td>AT+RECONNI=10
OK</td></tr></table></td></tr>
</table>

<table>
<tr><td>19</td><td>UUIDS</td><td>Bluetooth transparent transmission service UUID</td><td>32 hexadecimal numbers
Defaults:
0000fff000001000800000805f9b34fb</td><td><table><tr><td>Send</td></tr><tr><td>AT+UUIDS=0000fff000001000800000805f9b34fb</td></tr><tr><td>Answer</td></tr><tr><td>AT+UUIDS=0000fff000001000800000805f9b34fb
OK</td></tr></table></td></tr>
<tr><td>20</td><td>UUIDR</td><td>in the transparent transmission service

Read feature UUID (module send, APP receive)</td><td>32 hexadecimal numbers
Defaults:
0000fff100001000800000805f9b34fb</td><td></td></tr>
<tr><td>21</td><td>UUIDW</td><td>in the transparent transmission service

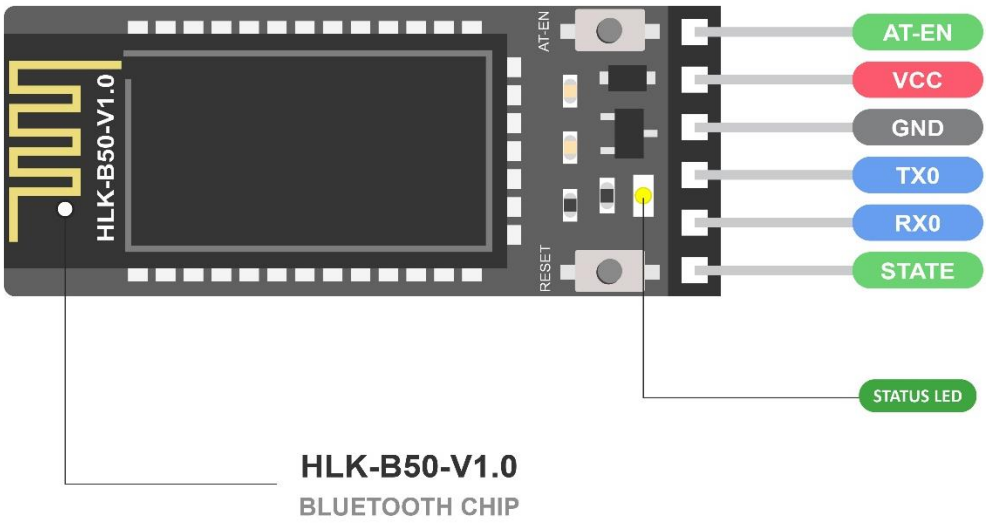
Write feature UUID (APP send, module receive)</td><td>32 hexadecimal numbers
Defaults:
0000fff200001000800000805f9b34fb</td><td></td></tr>
<tr><td>22</td><td>DISCONN</td><td>Actively disconnect the current and all of the modules bluetooth connection</td><td>1</td><td><table><tr><td>Send</td><td>Answer</td></tr><tr><td>AT+DISCONN=1</td><td>AT+DISCONN=1
OK</td></tr></table></td></tr>
<tr><td>23</td><td>ADVEN</td><td>Module bluetooth broadcast Enable</td><td>0 Disable the module's bluetooth broadcast

1 Enable the Bluetooth broadcast of the module
Default: 1

After disabled, the module cannot be used by the phone or other bluetooth host scan to</td><td><table><tr><td>Send</td><td>Answer</td></tr><tr><td>AT+ADVEN=?</td><td>AT+ADVEN=0
OK</td></tr><tr><td>AT+ADVEN=1</td><td>AT+ADVEN=1
OK</td></tr></table></td></tr>
</table>

<table>
<tr><td>24</td><td>BTNAME</td><td>module
BT traditional
bluetooth name
say</td><td>up to 20 characters
Defaults:
HLK_B50_****_BT</td><td><table><tr><td>Send</td><td>Answer</td></tr><tr><td>AT+BTNAME=?</td><td>AT+BTNAME=HLK_B50
OK</td></tr><tr><td>AT+BTNAME=ble_1234</td><td>AT+BTNAME=ble_1234</td></tr></table></td></tr>
<tr><td>25</td><td>BT MODE</td><td>SPPandGATTmold
mode setting, dual
mode
or single mode</td><td>0: SPP+GATT
1: SPP
2: BLE
Default: 0</td><td><table><tr><td>Send</td><td>Answer</td></tr><tr><td>AT+BTMODE=?</td><td>AT+BTMODE=0
OK</td></tr><tr><td>AT+BTMODE=1</td><td>AT+BTMODE=1
OK</td></tr></table></td></tr>
<tr><td>26</td><td>BTMAC</td><td>BTtraditional blue
MAC
address (and BLE
MAC is different)</td><td>read only</td><td><table><tr><td>Send</td><td>Answer</td></tr><tr><td>AT+BTMAC=?</td><td>AT+BTMAC=112233445501
OK</td></tr></table></td></tr>
</table>

Pin Diagram:



AT-EN: AT Enable Pin
STATE: Status Indication

Application:

- Communication between mobile and system
- Control motor pump using mobile.