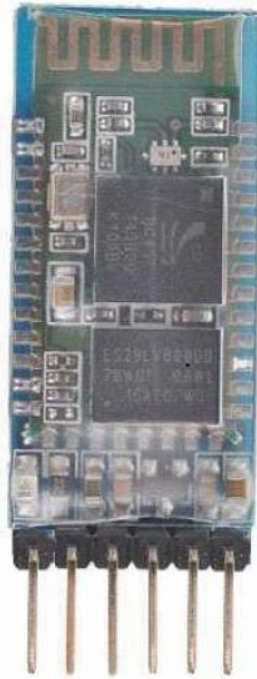


# DATASHEET BLUETOOTH TO SERIAL PORT MODULE HC05



## Overview

HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. Serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It uses CSR Bluecore 04-External single chip Bluetooth system with CMOS technology and with AFH (Adaptive Frequency Hopping Feature). It has the footprint as small as 12.7mmx27mm. Hope it will simplify your overall design/development cycle.

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# Specifications

## Hardware features

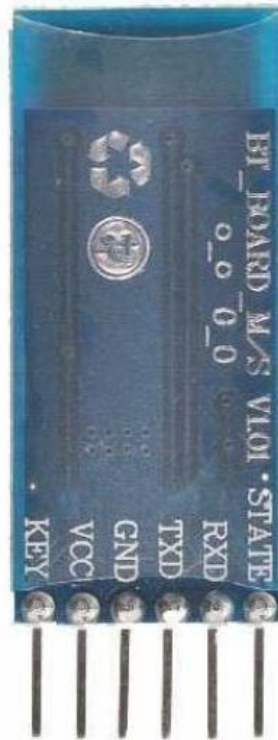
- Typical -80dBm sensitivity.
- Up to +4dBm RF transmit power.
- Low Power 1.8V Operation, 3.3 to 5 V I/O.
- PIO control.
- UART interface with programmable baud rate.
- With integrated antenna.
- With edge connector.

## Software features

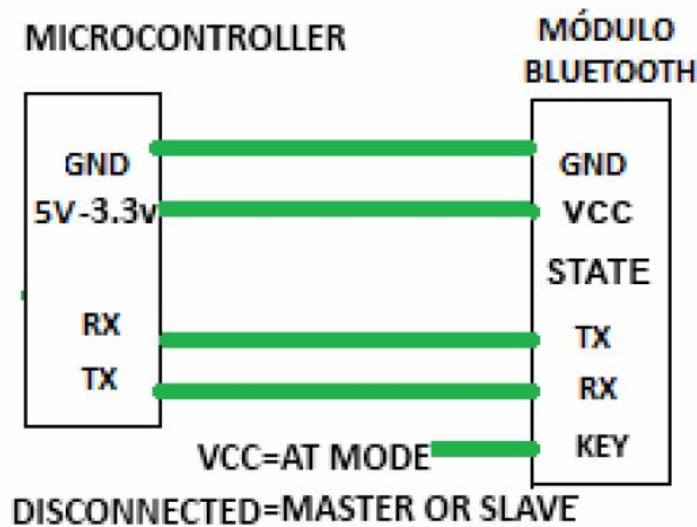
- Slave default Baud rate: 9600, Data bits:8, Stop bit:1,Parity:No parity.
- PIO9 and PIO8 can be connected to red and blue led separately. When master and slave are paired, red and blue led blinks 1time/2s in interval, while disconnected only blue led blinks 2times/s.
- Auto-connect to the last device on power as default.
- Permit pairing device to connect as default.
- Auto-pairing **PINCODE:"1234"** as default.
- Auto-reconnect in 30 min when disconnected as a result of beyond the range of connection.

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# Pin out configuration



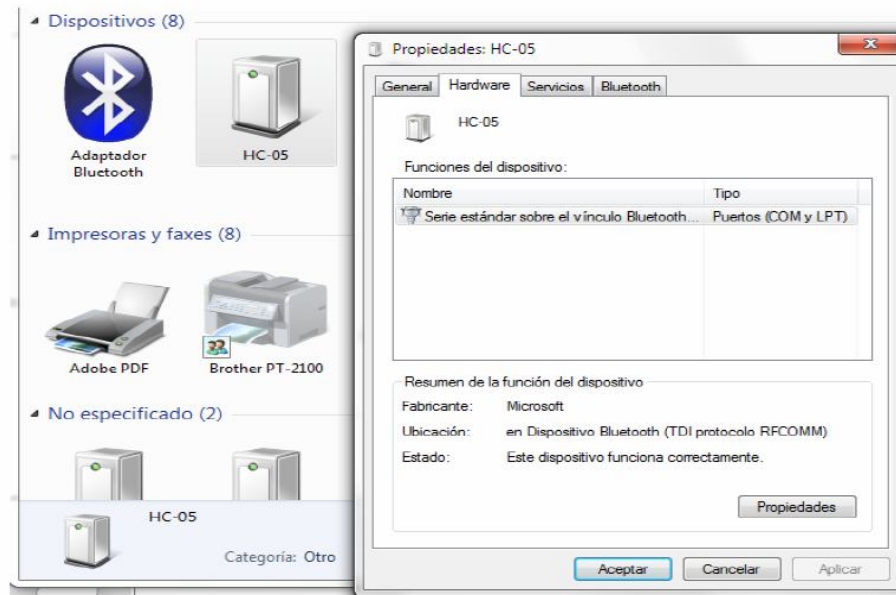
# Typical Application Circuit



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After connect the Bluetooth module, scan for new devices from the PC and you will find the module with the device name "HC-05", after that, click to connect, if some message appears asking about "Pairing code" just put "1234" as default code.

BLUE LED = ACTIVE (Blinking 500ms period inactive connection, change 1seg with active connection)



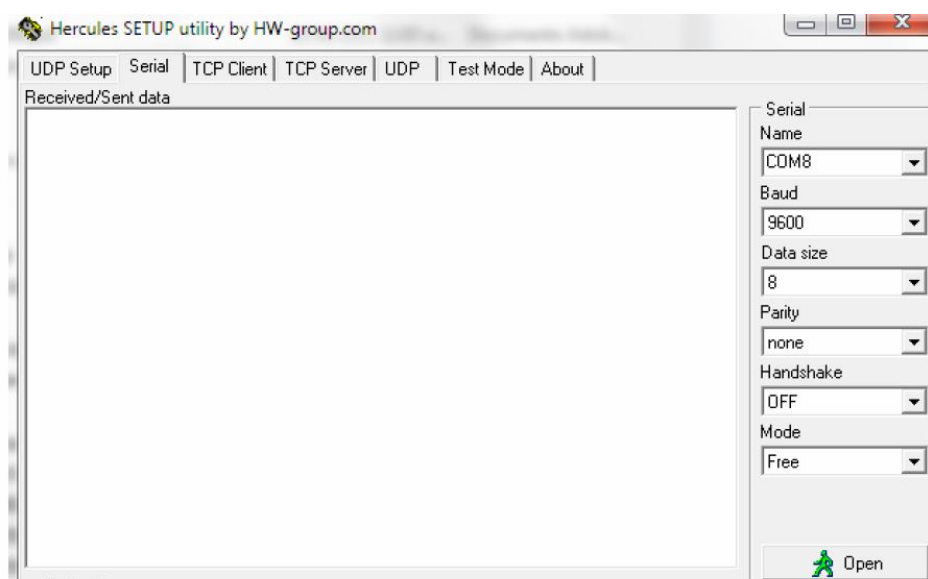
Open a serial terminal and select the serial COM x port number that assigned Windows to Bluetooth Module.

Configure the serial terminal with these parameters:

- Baud rate: 9600.
- Data bits:8.
- Stop bit:1.
- Parity: No parity.

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Open connection and you will be ready to send and receive data from module Bluetooth like Serial Port COM



## AT COMMANDS

### How to get to AT COMMAND mode

- 1: Connect KEY pin to VCC.
- 2: Supply power to module. Then the module will enter into AT MODE. In this mode you have to use baud rate at 38400. In this way, user should change the baud rate for SLAVE AND MASTER mode.

### How to set this module as “Master - Host” role

- 1: Input high level to KEY.
  - 2: Supply power to the module. And the module will enter to AT COMMAND.
  - 3: Set the parameters of the hyper terminal or the other serial tools (baud rate: 38400, data bit:8, stop bit:1, no parity bit, no Flow Control).
  - 4: Sent the characters “AT+ROLE=1\r\n” through serial, then receive the characters “OK\r\n”. Here, “\r\n” is the CRLF.
  - 5: Sent the characters “AT+CMODE=1\r\n” through serial, then receive the characters “OK\r\n”. Here, “\r\n” is the CRLF.
  - 6: Default factory password passkey is: 1243, this must be the same in the Bluetooth slave module if you want to pair it.
- To read passkey use this command: “AT+PSWD?”.
- To Reset the password command sent the characters “AT+PSWD=XXXX”.
- The password must be 4-bits.

7: Leave free KEY, and supply power to the module again. Then this module will become master role and search the other module (slave role) automatically to build the connection (baud rate:9600, data bit:8, stop bit:1, no parity bit, no Flow Control).

### **How to set this module be the “Slave - Device” role**

1: Input high level to KEY.

2: Supply power to the module. And the module will enter to AT COMMAND.

3: Set the parameters of the super terminal or the other serial tools (baud rate:

38400, data bit:8, stop bit:1, no parity bit, no Flow Control).

4: Sent the characters “AT+ROLE=0\r\n” through serial, then receive the characters “OK\r\n”. Here, “\r\n” is the CRLF.

5: Sent the characters “AT+CMODE=0\r\n” through serial, then receive the characters “OK\r\n”. Here, “\r\n” is the CRLF.

6: Default factory password passkey is: 1243, this must be the same in the Bluetooth master module if you want to pair it.

To read passkey sent the characters “AT+PSWD?”.

To Reset the password command sent the characters “AT+PSWD=XXXX”.

The password must be 4-bits.

7: Leave free KEY, and supply power to the module again. Then this module will become slave role and wait to be discover it by the other module (master role) automatically to build the connection (baud rate:38400, data bit:8, stop bit:1, no parity bit, no Flow Control).

### **How to get to the standard communication mode**

1: Leave free KEY, don't connect it to VDD neither GND.

2: Supply power to the module. Then the module will enter to communication mode. It can be used for pairing.

### **Notes**

(1) HC-05's command should end up with “\r\n”. It means when you finish programming, you should add terminator (“ENTER” or “0x0d 0x0a”) to the program.

(2) The most common commands for HC-05 are: AT+ROLE (set master-slave), AT+CMODE( set address pairing) , AT+PSWD (set password).

If you want the master module has the function of remembering slave module, the most simply way is: First, set AT+CMODE=1. Make the master module pair with the slave module. Second, set AT+CMODE=0. Then the master module just can make pair with that specified slave module.

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