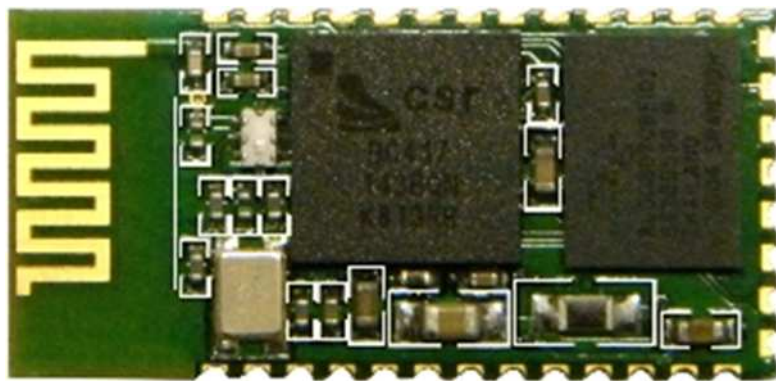


Bluetooth I/O Module

[SPP I/O Detection]

使用手冊



HL-MD08R-C2-IOD



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Welcome

HL-MD08R-C2-IOD 是藍牙遙控器發射模組，能支援同時8個I/O偵測轉Bluetooth SPP藍牙序列埠連結(SPP Profile)，可應用於Bluetooth Remote Control 藍牙遙控器(遙控端)，藍牙實驗，專題製作... ..

採CSR BC04藍牙v2.1版技術可向下相容於以往所有藍牙規格。其傳輸率也為 Bluetooth 1.x 約 3 倍快。提高多功處理及多種藍牙設備同步運作的能力，配備新規格的設備可傳輸更大的數據檔案。低耗電量特點將延長新一代藍牙裝置的使用時間高達現行的兩倍。

HL-MD08R-C2內建天線設計，解決DIY天線的煩惱，避免造成天線不匹配、訊號強度損耗、訊號反饋等情況。本款解決這個惱人的RF問題，將2.4GHz天線內建置模組內，讓您輕鬆徜徉體驗藍海。

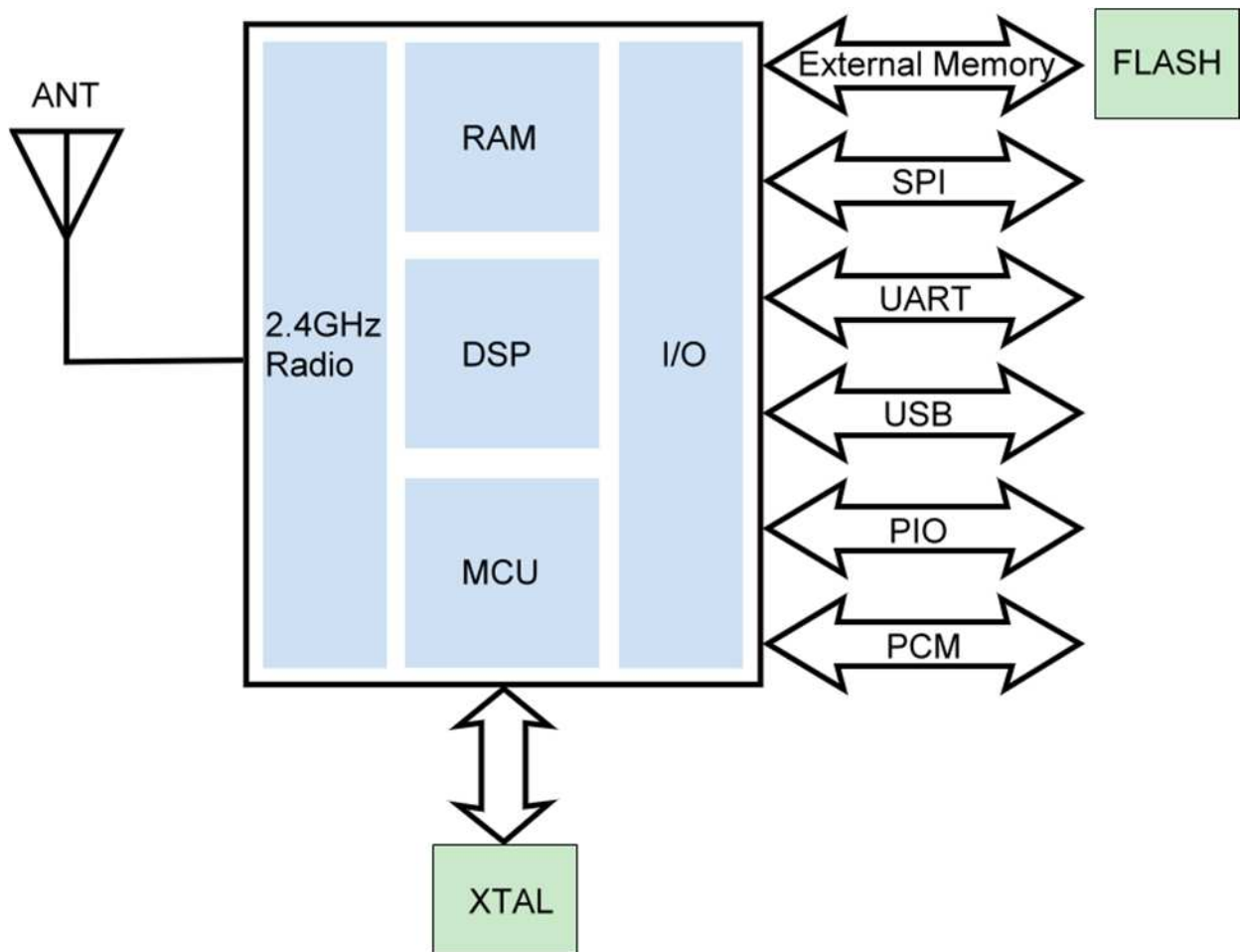
■ 功能簡介

- CSR BC04 Bluetooth v2.1+EDR 晶片
- 內建標準藍牙SPP (Series Port Profile)
- Class2傳輸距離10公尺內(開放空間環境)
- Bluetooth I/O Detection 模組
- 支援同時8個I/O偵測轉Bluetooth SPP
- 內建天線，收訊穩定
- 超迷你外型 27*13mm

■ 產品應用

- Bluetooth Remote Control 藍牙遙控器(遙控端)
- 藍牙實驗，專題製作... ..

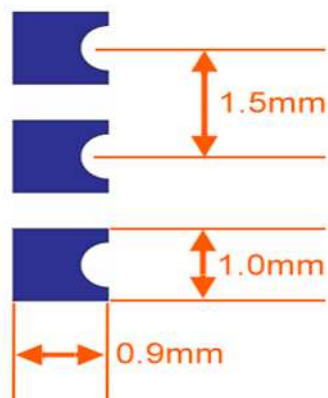
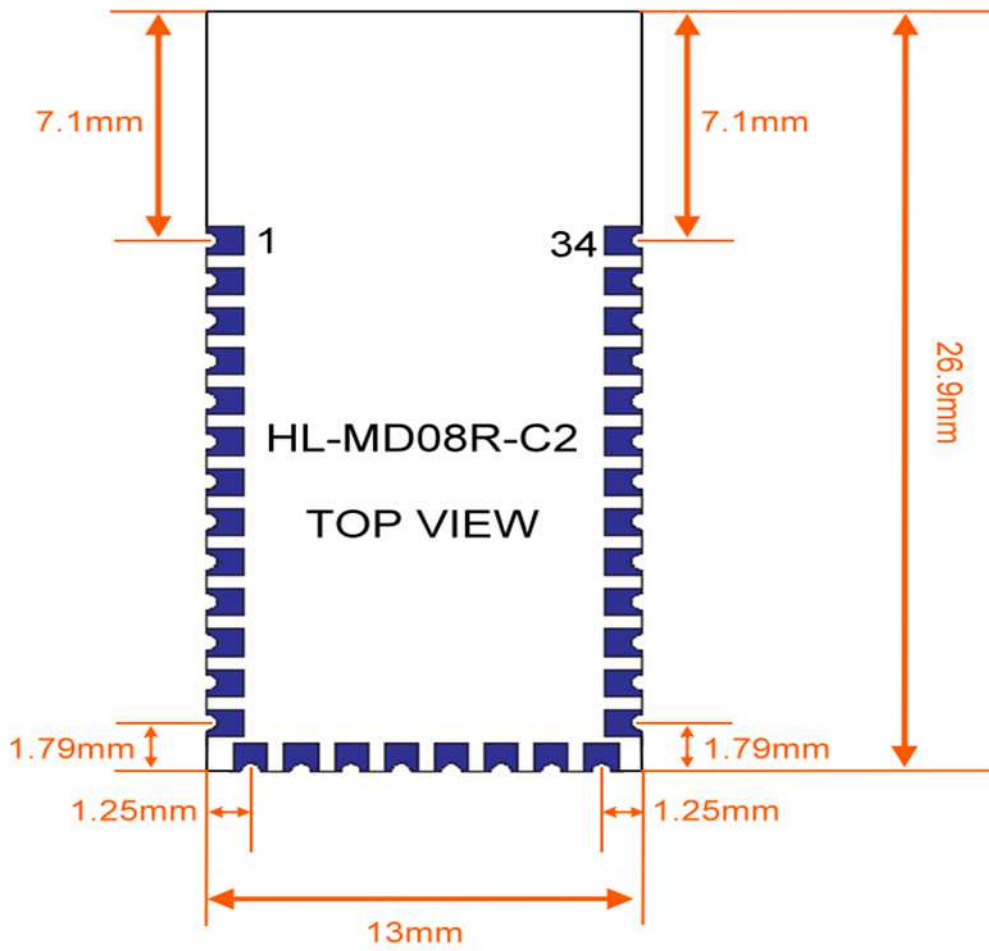
■ 方塊圖



■ 產品規格

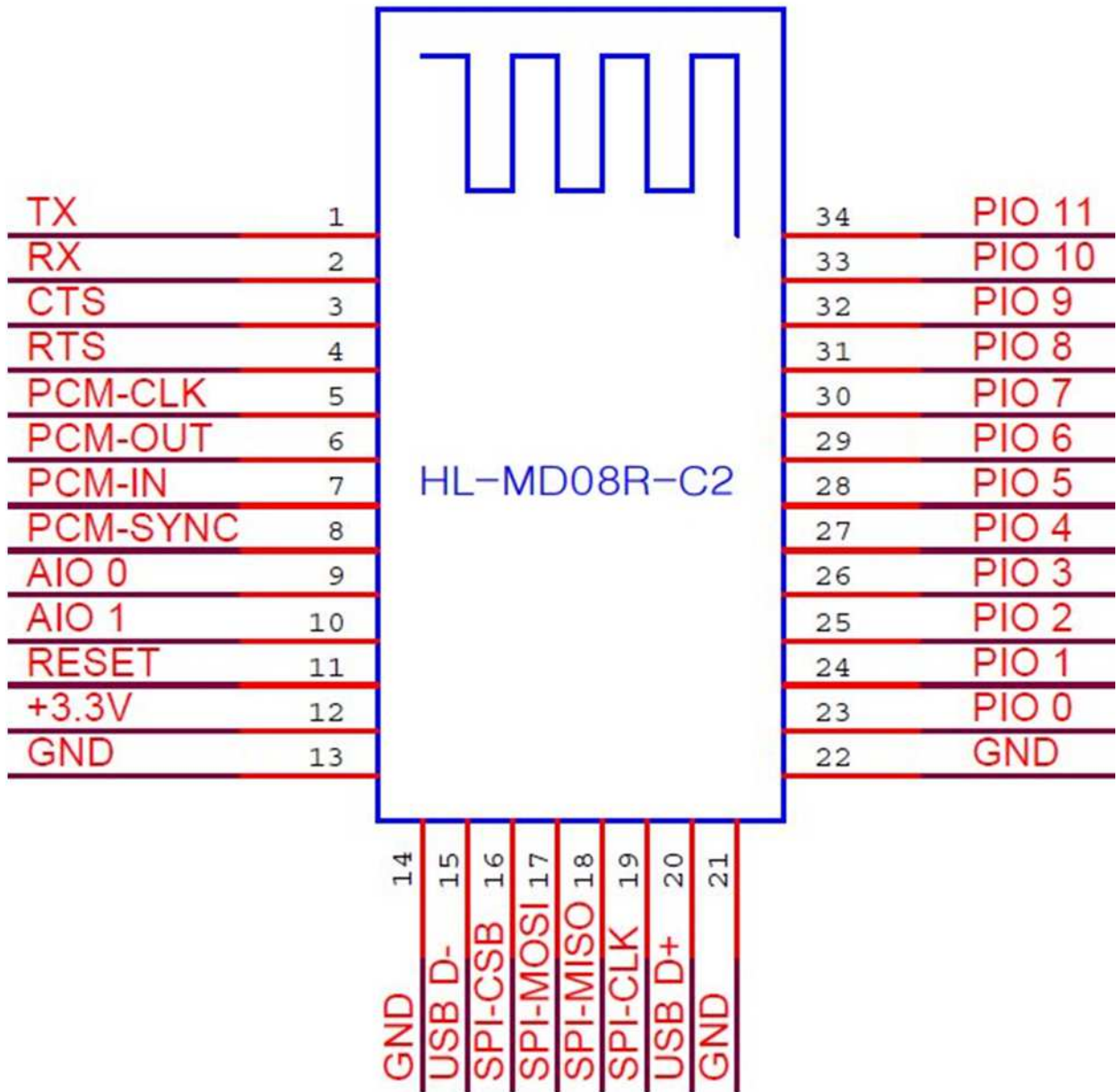
Model Name	HL-MD08R-C2-IOD
Bluetooth Profile	Series Port Profile (Bluetooth SPP)
Standard	Bluetooth specification version 2.1+EDR
Frequency	2.402GHz ~ 2.480GHz unlicensed ISM band
Hopping	1,600/sec, 1 MHz channel space
Modulation Method	GFSK for 1Mbps; $\pi/4$-DQPSK for 2Mbps; 8-DPSK for 3Mbps
Transfer rates (Max)	Max UART baud rates of 3Mbps
Spread Spectrum	Frequency Hopping Spread Spectrum (FHSS)
I/O Signal	0 or 3.3V
IO Channel	8 Channel
RF Output Power	Class 2
Tx Power	Max.4 +/-1 dBm
Rx Sensitivity	-80 dBm typical
Antenna	PCB Printed Antenna
Coverage	Up to 10 meter
Current Consumption	Max. 60 mA
Input Power	3.3V DC
Operating Temperature	0 ~ +60°C
Storage Temperature	-10 ~ +70°C
Dimensions	27 x 13 x 2(H)mm

■ 尺寸圖 (Unit : mm)



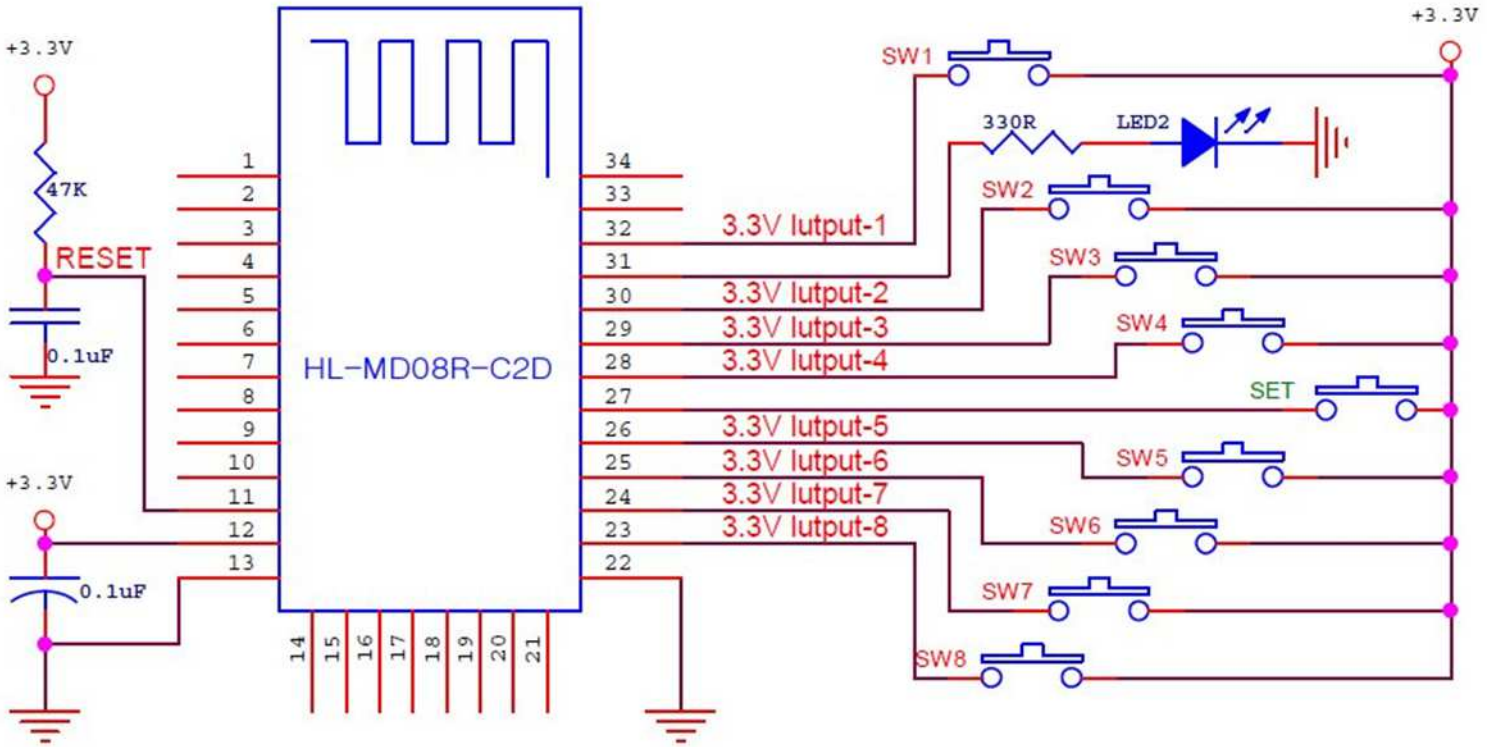
■ 接腳配置

PIN NO.	NAME	TYPE	FUNCTION
1	UART-TX	CMOS Output	UART Data Output
2	UART-RX	CMOS Input	UART Data Input
3	UART-CTS	CMOS Input	UART Clear to Send
4	UART-RTS	CMOS Output	UART Ready to Send
5	PCM-CLK	Bi-directional	Synchronous Data Clock
6	PCM-OUT	CMOS Output	Synchronous Data Output
7	PCM-IN	CMOS Input	Synchronous Data Input
8	PCM-SYNC	Bi-directional	Synchronous Data Sync
9	AIO(0)	Bi-directional	Programmable I/O line
10	AIO(1)	Bi-directional	Programmable I/O line
11	RESETB	CMOS Input	Reset active low
12	3.3V	POWER	+3.3V Supply
13	GND	GND	Ground
14	GND	GND	Ground
15	USB D-	Bi-directional	USB_DN
16	SPI-CSB	CMOS Input	Chip Select For Synchronous Serial Interface
17	SPI-MOSI	CMOS Input	Serial Peripheral Interface Data Input
18	SPI-MISO	CMOS Output	Serial Peripheral Interface Data Output
19	SPI-CLK	CMOS Input	Serial Peripheral Interface Clock
20	USB D+	Bi-directional	USB_DP
21	GND	GND	Ground
22	GND	GND	Ground
23	PIO(0)	Bi-directional	Programmable I/O line
24	PIO(1)	Bi-directional	Programmable I/O line
25	PIO(2)	Bi-directional	Programmable I/O line
26	PIO(3)	Bi-directional	Programmable I/O line
27	PIO(4)	Bi-directional	Programmable I/O line
28	PIO(5)	Bi-directional	Programmable I/O line
29	PIO(6)	Bi-directional	Programmable I/O line
30	PIO(7)	Bi-directional	Programmable I/O line
31	PIO(8)	Bi-directional	Programmable I/O line
32	PIO(9)	Bi-directional	Programmable I/O line
33	PIO(10)	Bi-directional	Programmable I/O line
34	PIO(11)	Bi-directional	Programmable I/O line



■ 模組硬體

➤ HL-MD08R-C2-IOD 電路圖



➤ LED 燈號說明

LED Name	LED Color	Situation	Function
Link	藍	快閃	主動模式 Master: Device is searching other available devices to pair.
		慢閃	被動模式 Slave: Device is waiting to be connected.
		恆亮	連線模式 Link: Device has paired and connected successful.

➤ 按鍵功能

Button Name	Function
SET	設定癮藏：按住 SET 設定按鍵 5 秒放開 清除配對：按住 SET 設定按鍵 10 秒放開

■ 藍芽參數

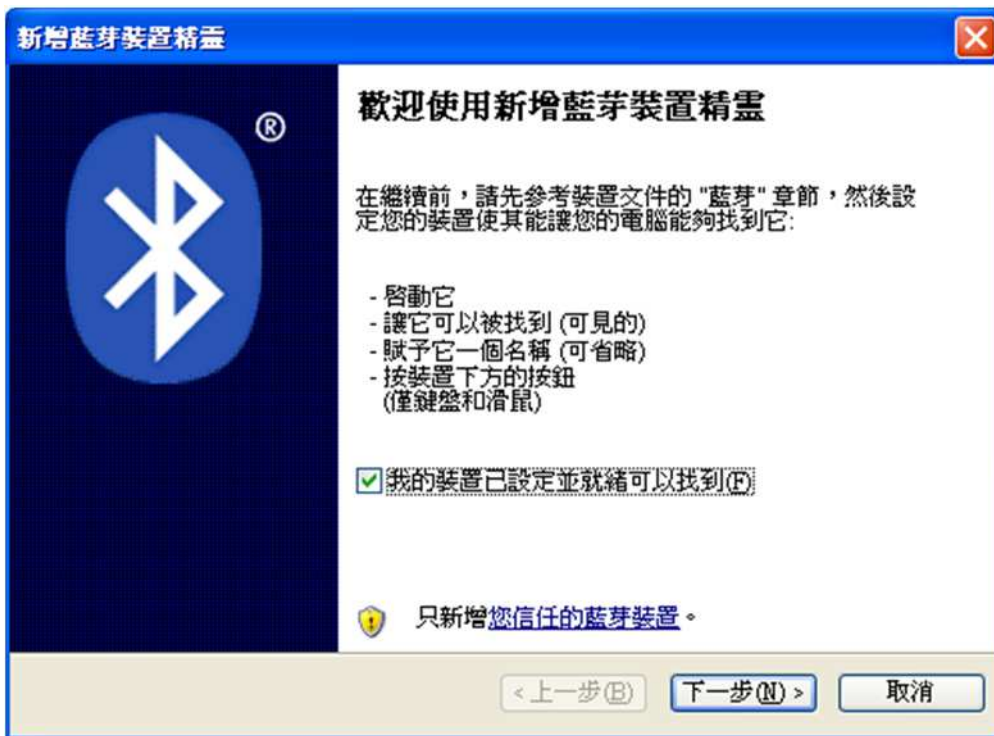
- 藍芽設備名稱 : IO Detection
- 配對驗證碼 PIN Code : 0000
- 藍芽角色Role : Slave Mode
- UART參數 : 115200, 8, n, 1

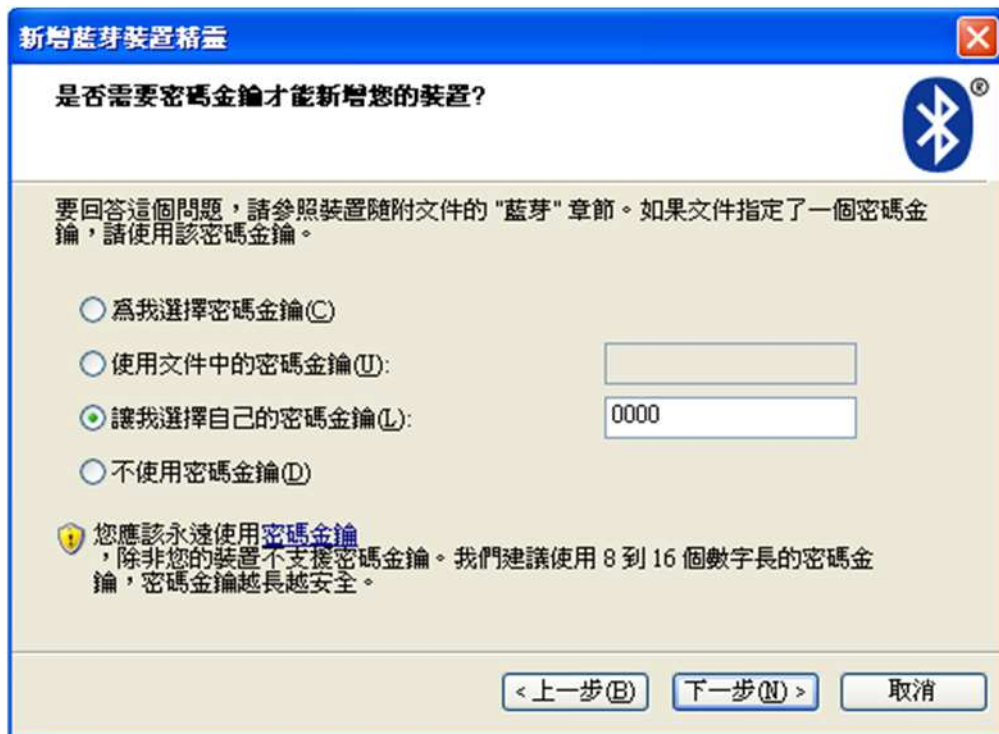
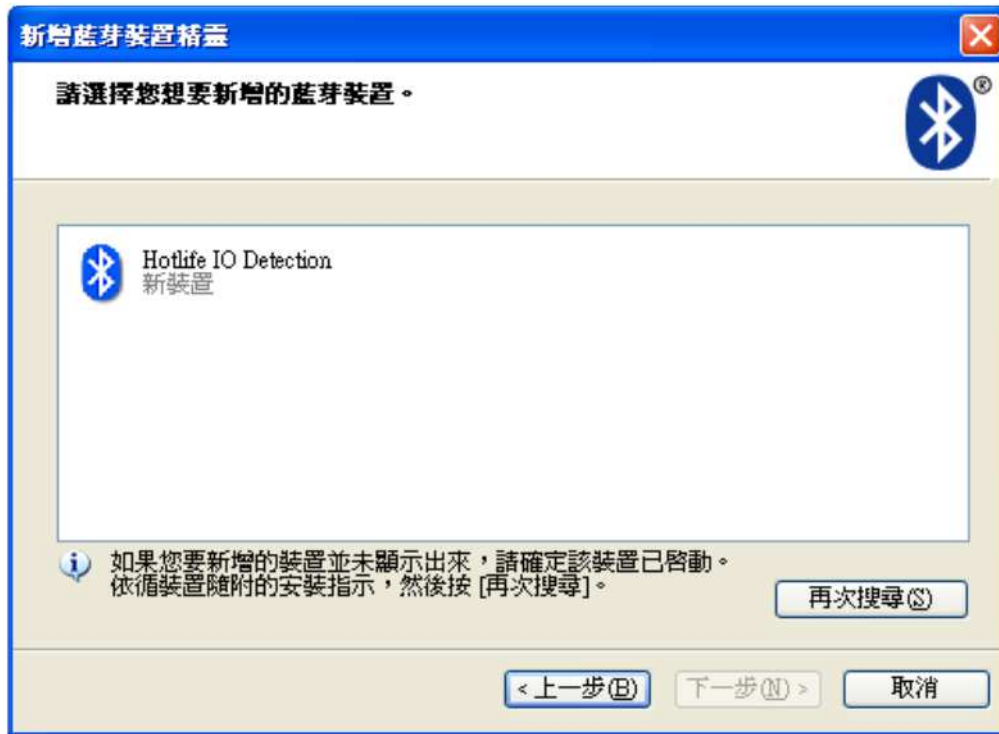
■ 指令說明

IO 接點	送入+3.3V 回傳之指令	停送+3.3V 回傳之指令
IO1	BTD011	BTD010
IO2	BTD021	BTD020
IO3	BTD031	BTD030
IO4	BTD041	BTD040
IO5	BTD051	BTD050
IO6	BTD061	BTD060
IO7	BTD071	BTD070
IO8	BTD081	BTD080

經由藍芽配對後，即可接收到 HL-MD08R-C2D 模組 回傳之指令資訊。

■ Windows 配對步驟



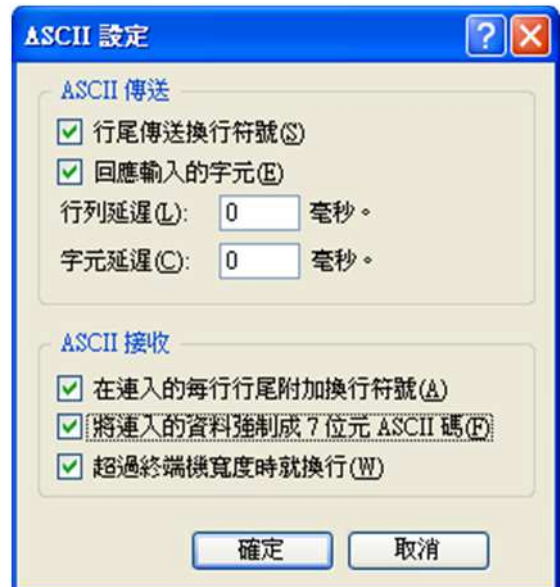




配對成功，系統建立 HL-MD08R-C2-IOD 對應的虛擬 Com Port 為 COM5

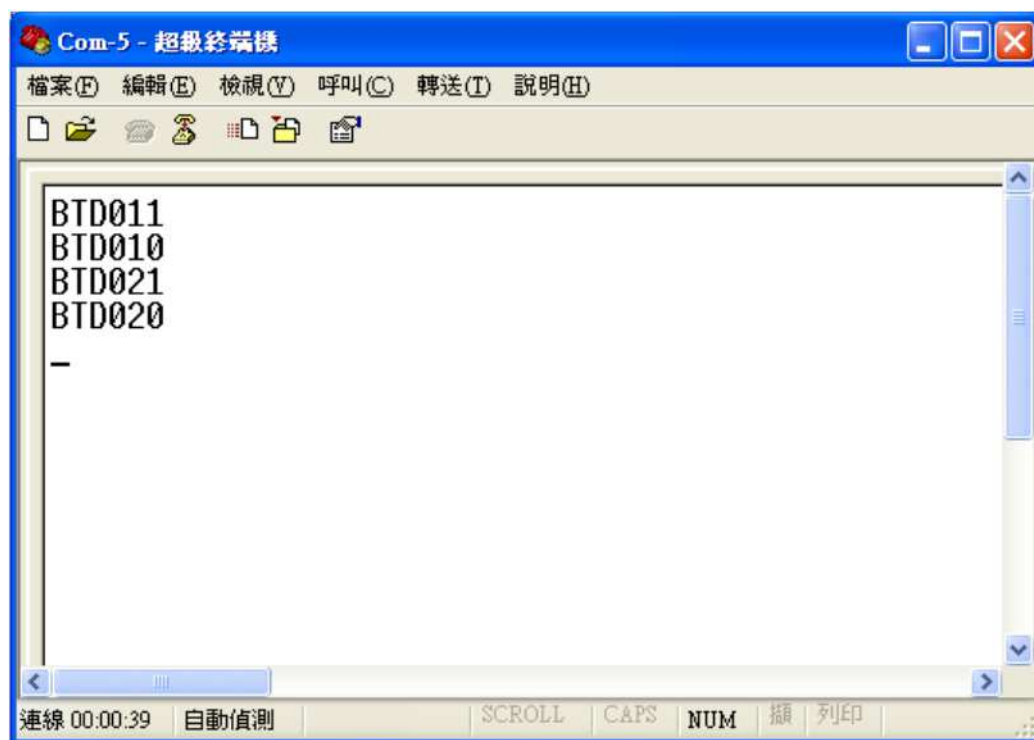
■ Windows 超級終端機設定





■ 接收測試

當 HL-MD08R-C2D 模組 IO 電位發生變化, 即會經由藍芽 SPP 回傳之指令資訊



IO 接點	送入+3.3V 回傳之指令	停送+3.3V 回傳之指令
IO1	BTD011	BTD010
IO2	BTD021	BTD020
IO3	BTD031	BTD030
IO4	BTD041	BTD040
IO5	BTD051	BTD050
IO6	BTD061	BTD060
IO7	BTD071	BTD070
IO8	BTD081	BTD080