

# HBA-200/210

**Multi Smart I/O Control Module**  
智能I/O控制模組

**User Manual**  
使用手冊



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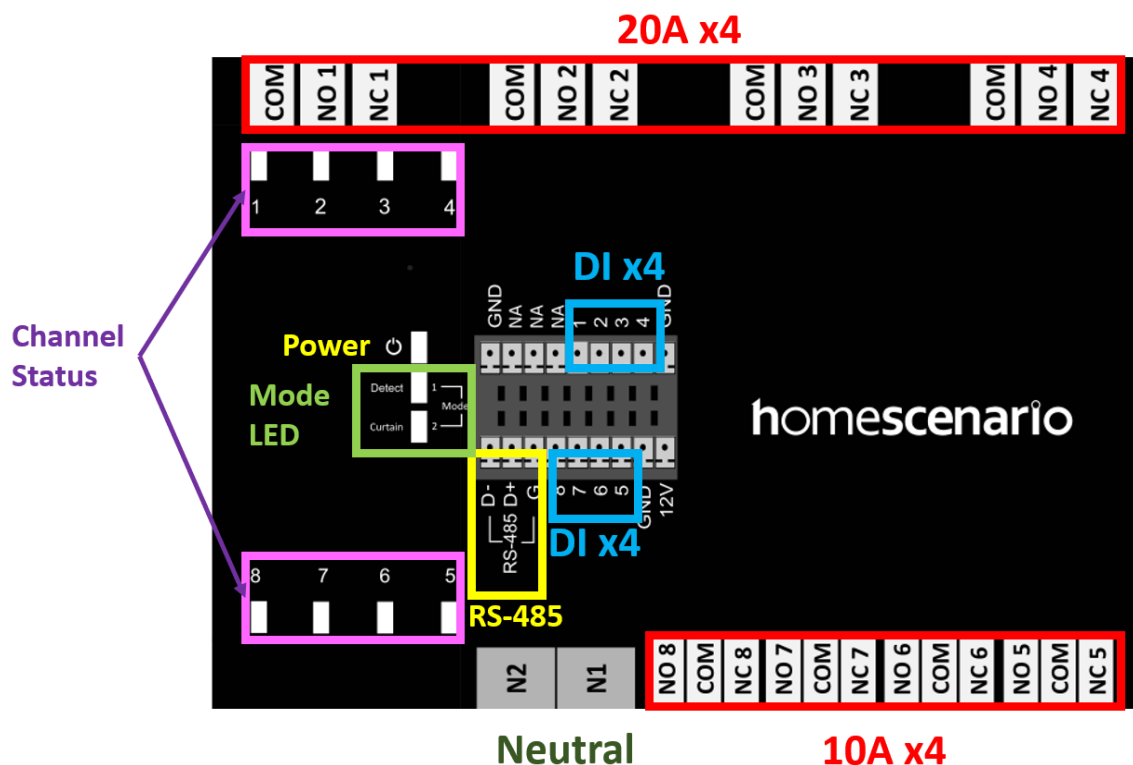
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## Introduction 簡介

The HBA-200 is a smart home input/output control module. With 8-channel relay outputs, it can be used to switch on/off for lights or electrical appliances. In addition, the HBA-200 provides 8-channel digit inputs, which can be connected with sensors and/or scenario buttons. The HBA-200 works with RS-485/Modbus controllers, such as HBC-100 or HBC-300, for smart home or smart building applications. HBA-200 front panel is illustrated as below:

HBA-200為智能輸出/輸入控制模組，它提供8組繼電器開關輸出與8組數位輸入。HBA-200可支援標準RS-485/Modbus控制器，例如：HBC-100/HBC-300；可應用於智能家居、智能建築。

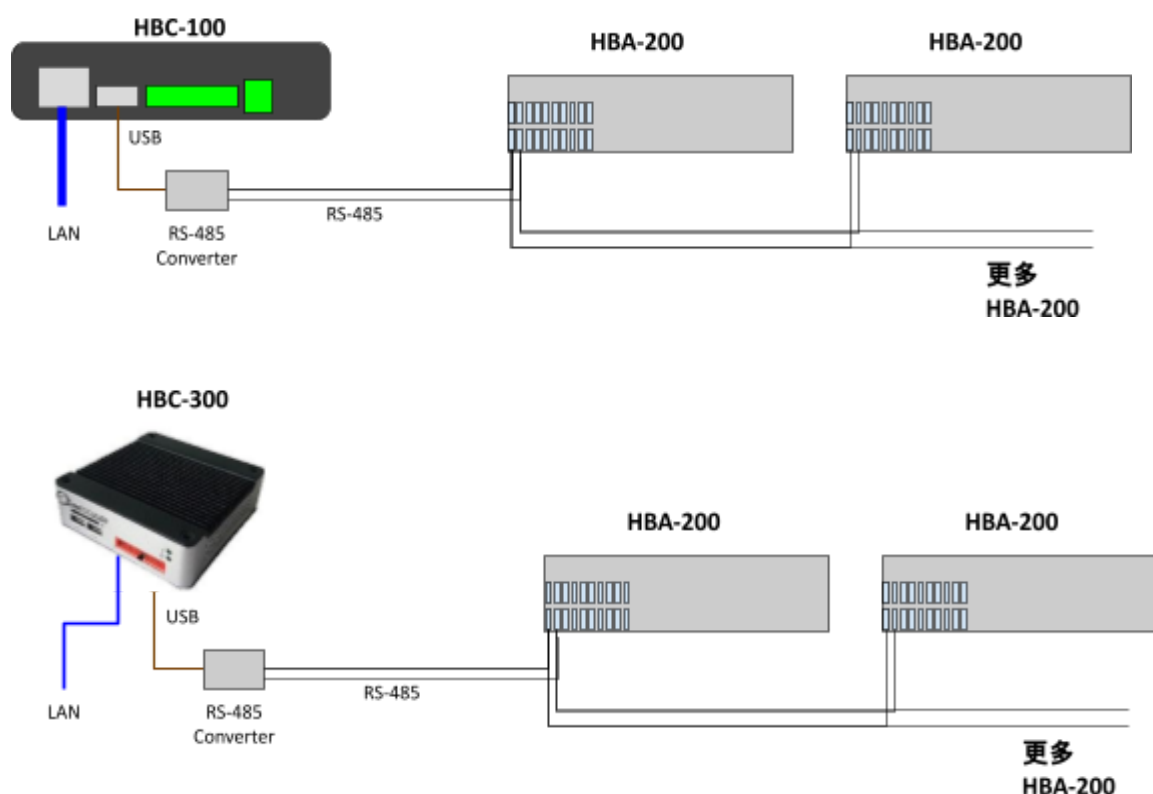
HBA-200外觀面板如下圖：



## Connection Diagram 線路架構

The HBA-200 can be connected with HBC-100/300 control gateway via RS-485 interface. They are wired as below:

以HBC-100與HBC-300控制主機為例，HBA-200分別依照下圖架構連網：



The HBC-100/300 is equipped with a USB/RS-485 converter. HBC-100 can usually control up to 4 HBA-200 modules, while HBC-300 no such limitation. HBA-200's RS-485 protocol is always configured as 9600 8N1.

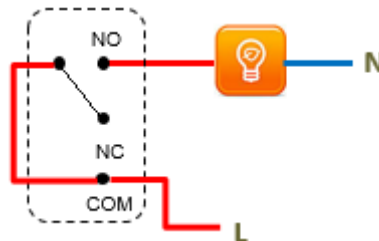
HBC-100/300可透過USB/RS-485轉接器控制HBA-200，HBC-100可控制4台HBA-200，HBC-300則沒有限制。HBA-200通訊協定均設為**9600 8N1**。

## Wiring Diagram for Relay Outputs 繼電器接線圖

The HBA-200 provides 4x20A and 4x10A relay outputs. Each output has 3-way COM/NC/NO terminal block connector, which is to be wired with load according to below diagram:

如前述，HBA-200提供4組20A繼電器輸出與4組10A輸出迴路，每迴路有三向COM/NC/NO接口端子台，可以依照下列方式連接負載：

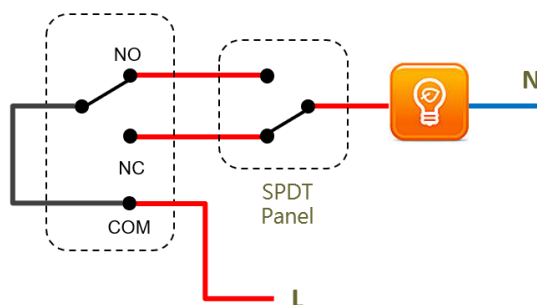
## 1. Direct connection with light 直接控制



HBA-200 relay outputs can be used to directly control light or appliance, which are turned on when its relay switched to NO. In addition to controlling via gateway, you can also use HBA-200's digital input with wall button to switch the light on/off.

在直接控制方式下，HBA-200的輸出點可直接控制燈光負載，切換至NO時開啟。此時，如果現場需要壁面開關，則需要透過DI輸入接點連接開關(如次頁圖)，並且在控制器上做設定。

## 2. Three-way connection through wall panel 三向接線



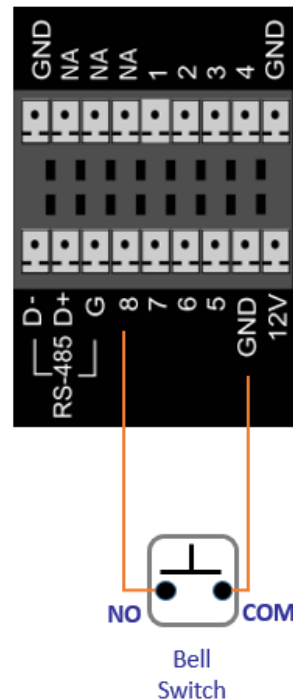
With 3-way switch wiring, either HBA-200 or wall switch panel can turn on/off light, even under the condition HBA-200 does not function the wall panel still works. The HBA-200 will automatically detect the light on/off status and synchronize with HBC-100/300 control gateway. Under this mode, please do wire the power neutral line with HBA-200's N1 (CH 1-4) or N2 (CH 5-8).

在三向接線方式下，HBA-200的繼電器輸出通常搭配COM/NC/NO三向壁面開關面板控制燈光，每一迴路需要配NC/NO兩組電源線與壁面開關連接；HBA-200與壁面開關均可分別切換燈光，即使HBA-200故障，壁面開關仍可正常運作。此模式下，

請將HBA-200 N1(CH 1-4)或N2(CH 5-8)端子接到電源的中性N線，以便HBA-200自動偵測(Auto Detect)燈光負載的開關狀態並回報控制主機。

## Wiring Diagram for Digital Inputs 數位輸入接線

The HBA-200 also supports 8x digital inputs with terminal blocks. These inputs are typically used to connect with wall switch panel (bell-type reset switch) or sensors. Please use the following digram: HBA-200提供8組數位輸入接點，通常可用於連接復位型壁面開關，用以切換燈光或預設情境；也可以在BA智慧建築應用中連接各式感應器、緊急壓扣等。使用時，請根據下圖接線：



The digital inputs can be configured by HBA-200 and further customized by control gateway. Accordingly user can press a wall button to perform preset scenario control.

DI訊號接入HBA-200後，可以透過變更HBA-200運作模式改變DI的定義，也可以透過控制主機客製化DI的功能，例如啟動燈光迴路或情境控制。

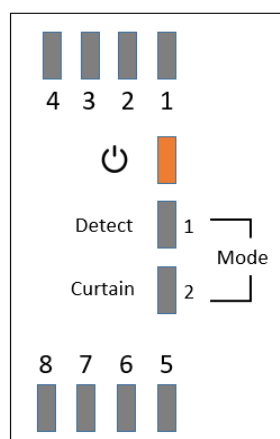
## How to Configure HBA-200 如何設定HBA-200

The following sections are about how to configure the HBA-200. First of all, remove the cover plate in front of HBA-200 you will see a program push button.

以下介紹HBA-200的設定流程。首先，請將HBA-200面板上的蓋板掀開，你將會看到一個設定按鈕。

### Front Panel LED 面板LED顯示

The status and setting procedure are displayed by the front panel LEDs of the HBA-200 (see below). HBA-200的運作狀態與設定流程，會經由面板上的LED指示燈呈現(如下圖)。



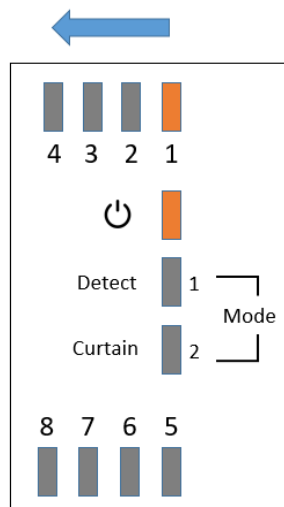
These LEDs show you about: 這些LED主要分為三類:

- **Power 電源**: when HBA-200 is powered on this LED is always on. When RS-485 is transmitting data this LED will blink. HBA-200面板上有提供電源指示燈。當HBA-200開啟時，電源LED會恆亮，HBA-200收發RS-485訊號時，此電源LED會閃爍
- **Mode LED 模式**: HBA-200 provides 3 operation modes: direct control lighting mode, auto detection lighting mode, and curtain control mode, which will be illustrated later: 在後續章節會詳細說明，HBA-200提供三種工作模式，分別為直接控制燈光模式、自動偵測燈光模式、窗簾模式：
  - Detect LED (Mode 1) means HBA-200's auto detection status. When this LED is on (i.e. 3-way connection), HBA-200 will auto-detect lighting on/off status. 當Detect LED (Mode 1)亮起時，HBA-200為自動偵測燈光模式(HBA-200應採用三向接線，須接N線)，若為直接控制燈光模式，Detect LED熄滅。
  - Curtain LED (Mode 2) represents HBA-200's curtain control mode. When this LED is on, HBA-200 is switched to curtain mode. 當Curtain LED (Mode 2)亮起時，代表HBA-200切換至窗簾模式。

- **LED 1-8迴路**: These LEDs are synchronized with relay channel 1-8 status:
  - Under lighting control mode, LED 1-8 represent lighting on/off status. 在HBA-200的燈光模式時, LED 1-8會分別同步該迴路燈光負載的開關狀態, LED亮即代表該迴路燈光開啟。
  - Under curtain control mode, when relay is switched to NO the LED is on. 在HBA-200的窗簾模式時, 當該迴路繼電器切換至NO時, LED亮起。
  - Under setting mode, the LEDs will assist and navigate your HBA-200 ID setup or changing operation mode. 在設定HBA-200時, LED1-8會協助導引設定設備編號或切換模式。

## Room ID setting 設定HBA-200編號

The default room ID for HBA-200 is 1, which can be setup among 1-16. You can change HBA-200's room ID by pressing the program button 3 times to enter ID setting mode, starting from default ID=1: HBA-200出廠預設編號為1, 可修改為1-16中的任一編號。你可以連續按下設定鍵3次, 進入ID設定模式。



Under ID setting mode, press and hold program button so the LED will alternate from 1 to 16.

- LED1-8 on: ID 1-8
- LED1-8 blink: ID 9-16

When it turns to your target Room ID (HBA-100 supports only ID 1-4) release the button then HBA-200 will change the Room ID accordingly.

在此模式之下, 按設定鍵不放HBA-200將依次循環:

- LED1-8亮: ID 1-8
- LED1-8閃爍: ID 9-16







當HBA-200輪替至欲修改之編號時, 放開設定鍵即完成ID修改。



## HBA-200 Operation Mode HBA-200的運作模式

HBA-200 can be configured to 3 operation modes:

HBA-200可以設定為以下三種運作模式，整理如下表：

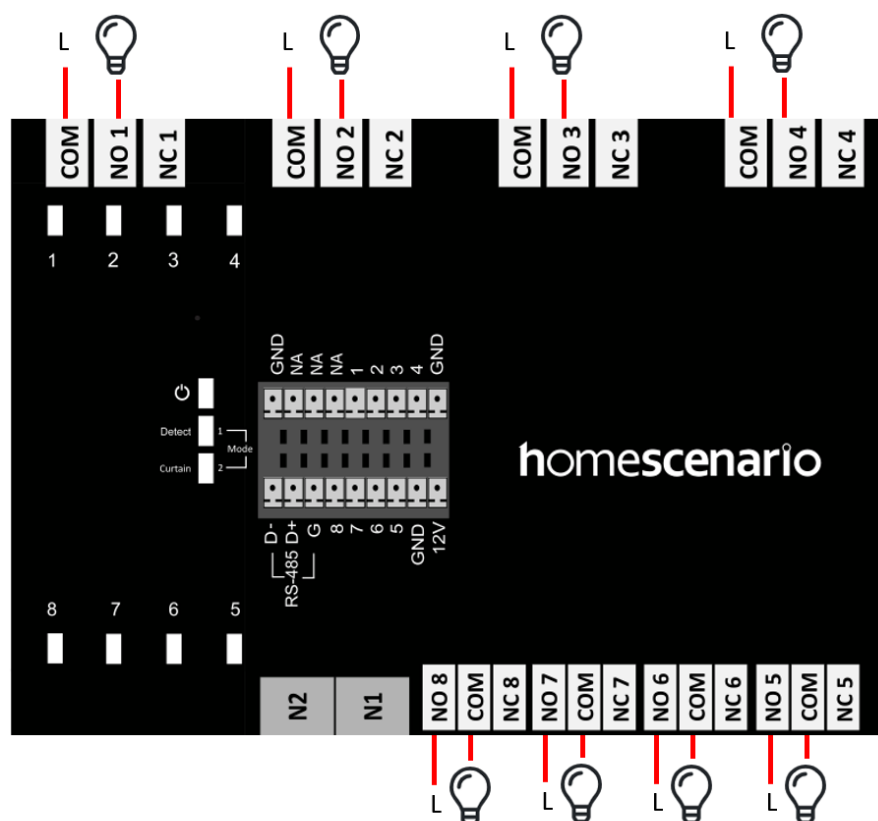
Mode 模式	Mode Display LED顯示	Relay Output 繼電器輸出	Digital Input 數位輸入
Direct Control Lighting 直接控制燈光模式	 1  2	CH 1-8: COM/NO 8迴路採取單向接線	DI 1-8: Light 1-8, bell-type reset switch, press to change on/off status DI對應相同編號輸出，採復位開關，按一下改變狀態
Auto Detection Lighting 自動偵測燈光模式	 1  2	CH 1-8: COM/NC/NO 8迴路採取三向接線	DI 1-6: Defined by control gateway DI 7: All ON 全開 DI 8: All OFF 全關 Use bell-type reset switch, press to execute 採復位開關，按一下執行命令
Curtain Control 窗簾模式	 1  2	CH 1-2: AC Motor CH 4/5/6: Curtain 1 CH 3/7/8: Curtain 2	DI 1: AC Motor Up馬達前進 DI 2: AC Motor Stop馬達停 DI3: AC Motor Down馬達倒退 DI 4: All Curtain Open窗簾開 DI 5: All Curtain Stop窗簾停 DI 6: All Curtain Close窗簾關 DI 7: All Open全開 DI 8: All Close全關 Use bell-type reset switch, press to execute 採復位開關，按一下執行命令

## Direct Control Lighting 直接控制燈光模式

### Wiring Diagram 接線架構

As previously mentioned, under direct control lighting mode the HBA-200's relays will connect to lights directly. Please refer to the diagram below for connection.

如前所述，HBA-200設定成直接控制燈光模式時，各迴路之繼電器NO接點直接連接燈光負載如下圖所示：



### Mode Setup 模式設定

Please use the following steps to setup direct control lighting mode:

- Press program button, the LED5 will blink
- Press and hold program button, Detect LED (mode 1) will alternate on/off. Release button when it's off to complete the setup

請根據下列步驟設定直接控制燈光模式：

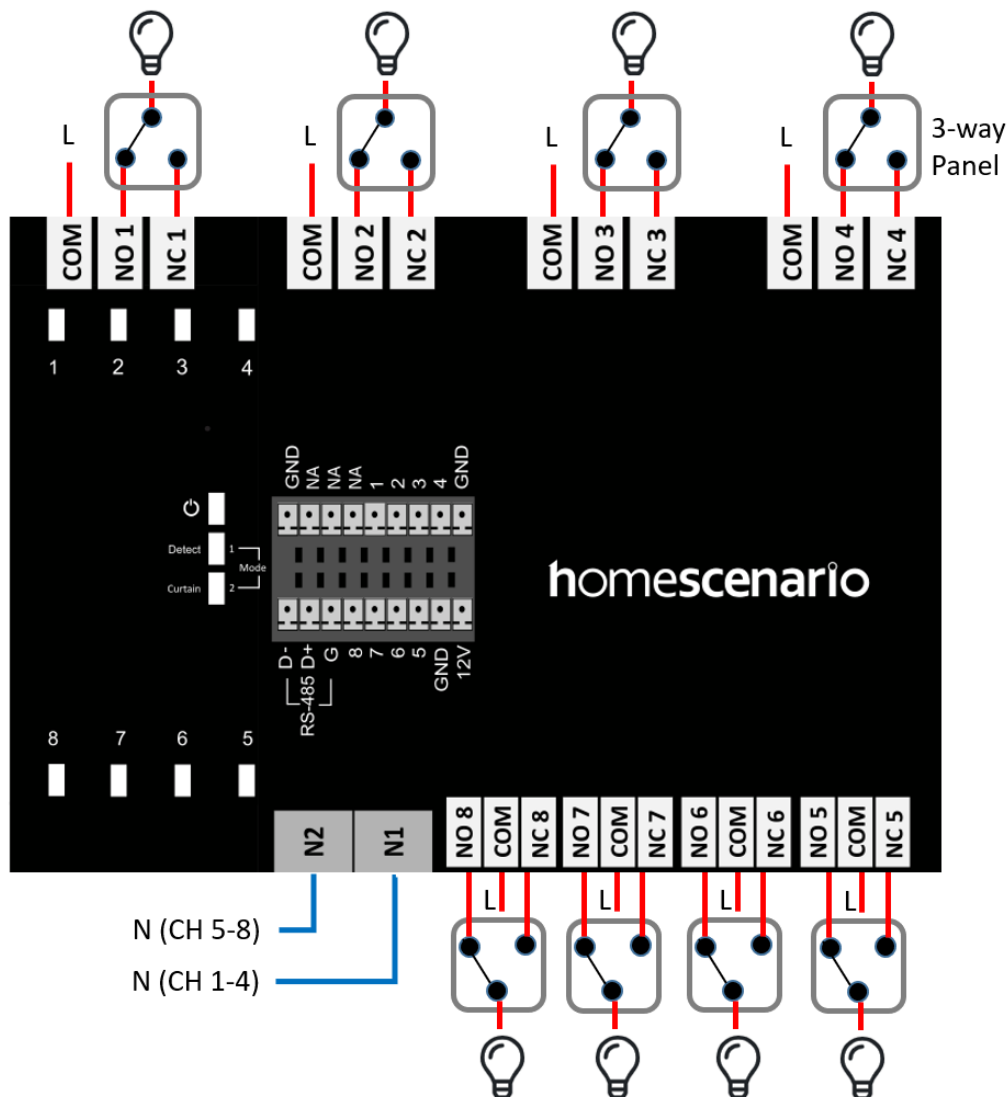
- 按下設定鍵，此時LED5將會閃爍
- 長按設定鍵，Detect LED (mode 1)將會亮暗交替，在LED熄滅時放開設定鍵即可完成

## Auto Detection Lighting Mode 自動偵測燈光模式

### Wiring Diagram 接線架構

As previously mentioned, under auto detection lighting mode the HBA-200's relays will connect to lights via 3-way wall panel. Please refer to the diagram below for connection.

如前所述，HBA-200設定成自動偵測燈光模式時，各迴路之繼電器NC/NO接點透過雙切開關連接燈光負載如下圖所示：



Please note, under this mode you need to wire the neutral power line to N1 (CH 1-4) or N2 (CH 5-8).  
請注意，在此模式下，需要將電源中性N線接至HBA-200的N1(1-4迴路)或N2接點(5-8迴路)。

## Mode Setup 模式設定

Please use the following steps to setup direct control lighting mode:

- Press program button, the LED5 will blink
- Press and hold program button, Detect LED (mode 1) will alternate on/off. Release button when it's on to complete the setup

請根據下列步驟設定直接控制燈光模式：

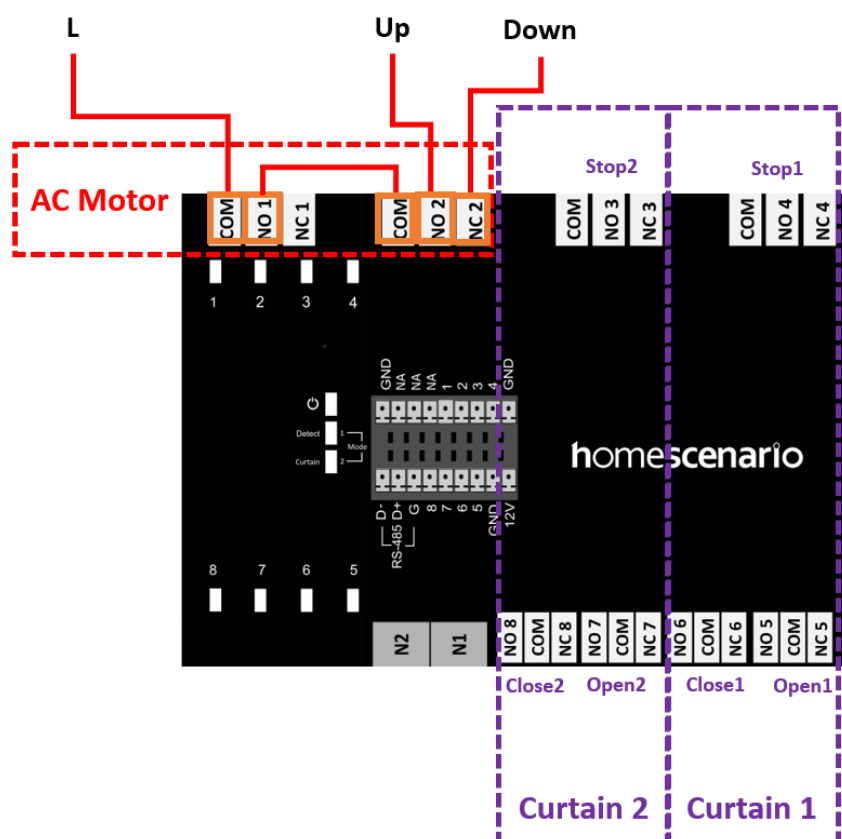
- 按下設定鍵，此時LED5將會閃爍
- 長按設定鍵，Detect LED (mode 1)將會亮暗交替，在LED亮起時放開設定鍵即可完成

## Curtain Control Mode 窗簾控制模式(HBA-210)

### Wiring Diagram 接線架構

The curtain control mode will transform the HBA-210 from controlling 8-CH lights to 1-CH AC motor and 2-CH DC contact curtains. Its connection diagram is as follows:

HBA-210之窗簾控制模式支援1迴路AC馬達與2迴路乾接點窗簾軌道，其接線方式如下：



Please note HBA-200 connects to AC motor via NC and NO of single relay, which can well prevent AC motor locked-up.

HBA-200之窗簾模式, 在連接AC馬達方面, 透過NC/NO接線可有效防止電路因素造成馬達鎖死的現象。

## Mode Setup 模式設定

Please use the following steps to setup direct control lighting mode:

- Press program button twice, the LED6 will blink
- Press and hold program button, Curtain LED (mode 2) will alternate on/off. Release button when it's on to complete the setup

請根據下列步驟設定直接控制燈光模式：

- 按下設定鍵2次, 此時LED6將會閃爍
- 長按設定鍵, Curtain LED (mode 2)將會亮暗交替, 在LED亮起時放開設定鍵即可完成

## Customize HBA-200 Digital Input 客製化DI輸入

The HBA-200 has 8 digital inputs which can be connected with sensors or wall buttons. You can customize these inputs from the associated control gateway, which can be lighting on/off, zone control, or scenario control.

如前所述, DI訊號接入HBA-200後, 視搭配的控制主機而定, 可由控制主機定義其代表功能, 可以啟動燈光迴路、多迴路控制、或搭配預設情境控制。