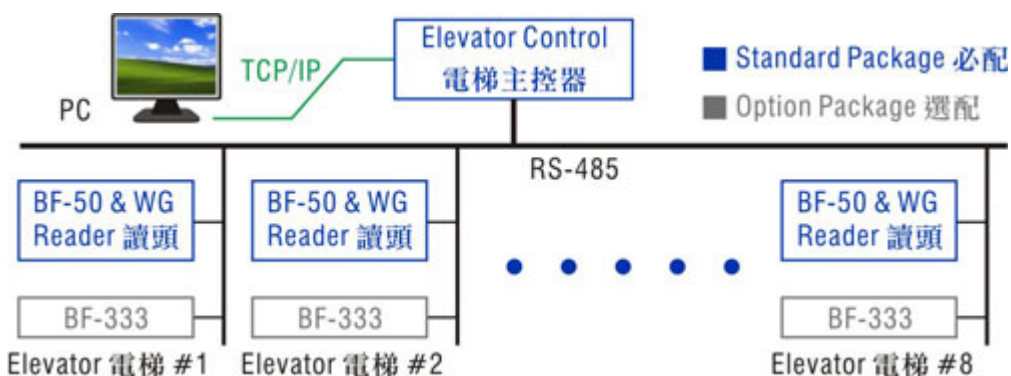# BF-50 Relay Box

Features

1. Should work with BF-670/660/870/880 Multi-door access controllers

2. Integration with EM lock, door Sensor dry contacts and Wiegand readers (in/out) to save deployment costs.

3. 3 rd party's Wiegand readers (in/out) is compatible.

4. Built-in Watch Dog

5. Auto Short or Cut off diagnostic thru Door Sensor.

6. Relay control is driven by RS485 for higher security. Push button can be operated when controller is disconnected under Emergency mode.

Specification

➢ Wiegand input : 2 (WG26/34 Auto detect)

➢ Communication Interface : RS-485

➢ Door Relay (Relay D) : 1 (3A /125VAC/30VDC)

➢ Alarm Relay : 2 (3A /125VAC/30VDC)

➢ Dry contact for Push Button : 1

➢ Dry contact for Sensor self-detecting : 1

➢ Maximum RS-485 distance : 1000 m

➢ Maximum wiring distance for Wiegand reader : 80 m

➢ Power Input (DC) : 9-24V DC

➢ Current consumption < 900 mA

➢ Environmental Temperatures and Humidity :

   Operation Temperature: 0 ℃ to 55 ℃

   Storage Temperature: -20 ℃ to 70 ℃

   Operation Humidity: 0 ％ to 90 ％

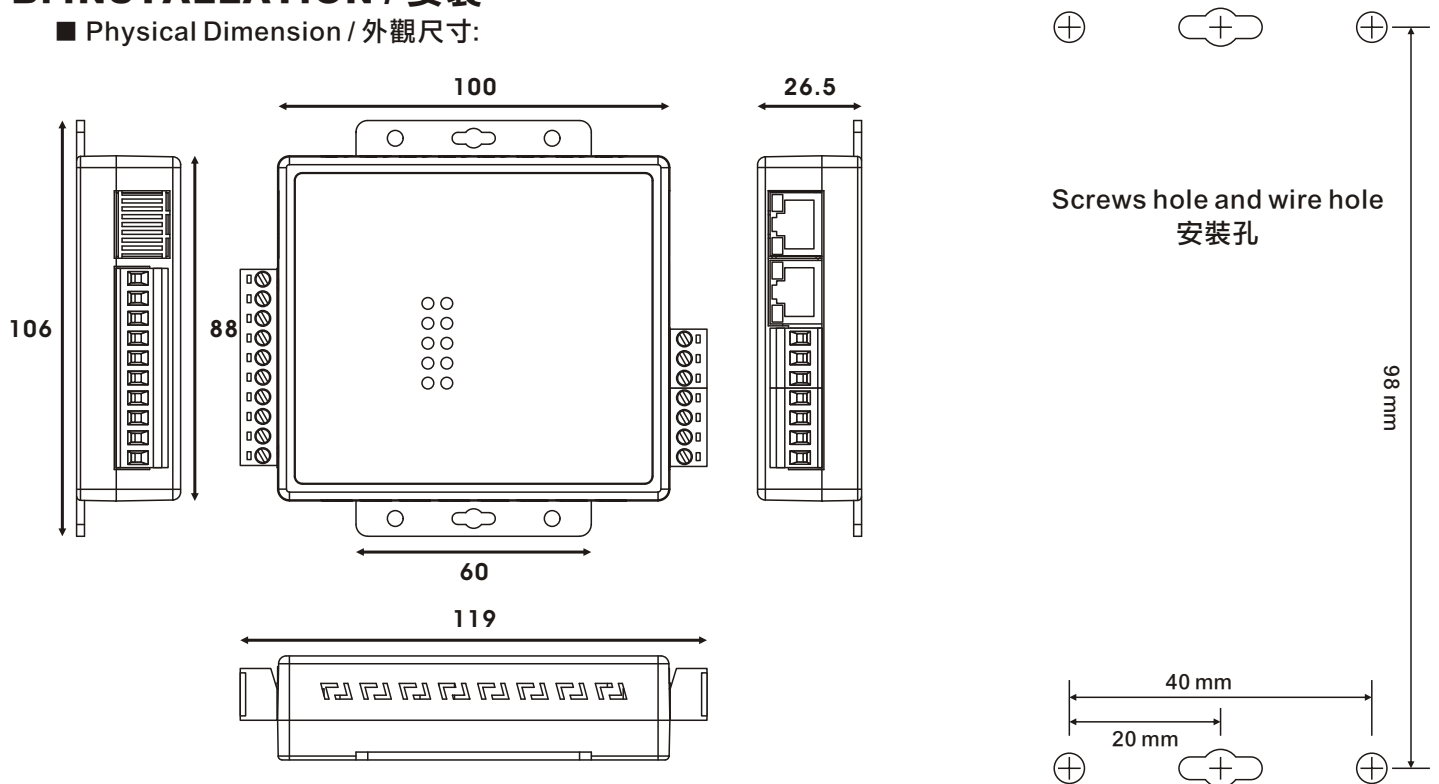   Storage Humidity: 0 ％ to 90 ％

A. Package content / 包裝內容

■ PARTS / 包裝內容
Relay Box X 1, RJ-45 Cable X 2, Accessaries kit X 1(Plastic screw X 4, Fastening screw X 4),
Installation Guide X 1
繼電器 X 1，網路線 X 2，配件包 X 1(塑膠壁虎 X 4，固定螺絲 X 4)，安裝指南 X 1

B. INSTALLATION / 安裝

■ Physical Dimension / 外觀尺寸:

Screws hole and wire hole
安裝孔

100   26.5
106   88   60   119
98 mm
40 mm
20 mm

■ RECOMMENDED / 建議採用
- Switching DC Power supply is recommended. / 穩壓直流電源
- Shield type cable for RS-485 is recommended. / 485 請使用遮蔽電纜線
- Please use separately power source for BF-50 and Magnetic lock is recommended. / BF-50 與電鎖分開供電

■ SPECIFICATIONS / 規格
- Power output 9~24 VDC / 電壓範圍 9 ~ 24 VDC
- Max current 1A / 最大電流 1A
- Max distance for wiegand is 80M / 微根通訊最遠距離 : 80M
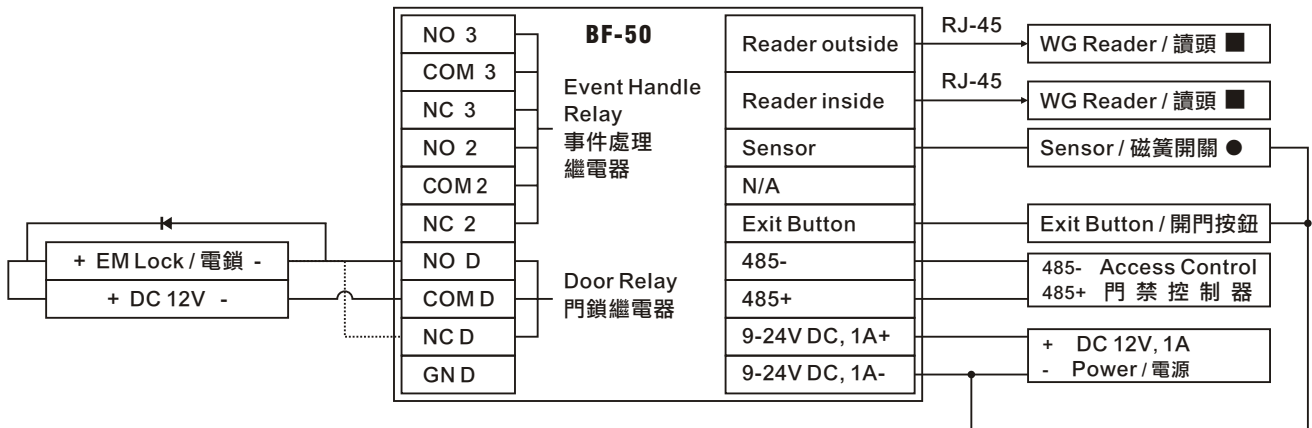- Max distance for RS-485 is 1000M / RS-485 通訊最遠距離 : 1000M

■ Notice / 注意事項：
- Do not connect other contacts to the power unit except power contacts.
  除電源接點外，其他接點勿與電源接觸。
- Do not apply any unverified power supply to the unit or the hardware system may be damaged or may cause system an unstable condition.
  採用不符合規格之變壓器可能會造成系統不穩定或對硬體造成損傷。

B. Pin Assignments / 輸出輸入端子

EM lock:
— Wiring for magnetic-lock open when power on. / 通電開電鎖接線
··· Wiring for magnetic-lock open when power off. / 斷電開電鎖接線

BF-50		
NO 3	Event Handle Relay 事件處理繼電器	Reader outside — RJ-45 → WG Reader / 讀頭 ■
COM 3		
NC 3		Reader inside — RJ-45 → WG Reader / 讀頭 ■
NO 2		Sensor → Sensor / 磁簧開關 ●
COM 2		N/A
NC 2		Exit Button → Exit Button / 開門按鈕
NO D	Door Relay 門鎖繼電器	485- → 485- Access Control
COM D		485+ → 485+ 門禁控制器
NC D		9-24V DC, 1A+ → + DC 12V, 1A
GND		9-24V DC, 1A- → - Power / 電源

+ EM Lock / 電鎖 -
+ DC 12V -

★ Using separately power source for BF-50 relay box and magnetic lock. / BF-50 繼電器與電鎖分開供電

■ RJ-45 cable color read for Reader connection. / RJ-45 與感應讀頭接線説明
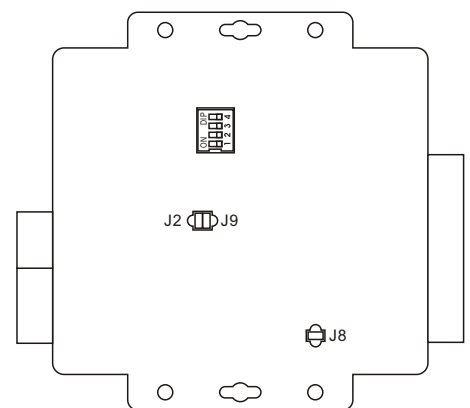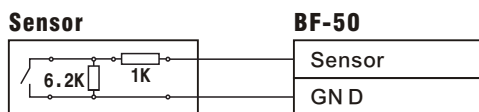
• Max distance for wiegand is 80M / 微根通訊最遠距離 : 80M
1. Orange, White / 橘白 → D0
2. Orange / 橘 → D1
3. Green, White / 綠白 → Output, controlled the LED of Reader / 讀頭 LED 控制接點
4. Blue 藍 → Output, controlled the Buzzer of Reader / 讀頭蜂鳴器控制接點
5. Blue, White / 藍白 → Reader sensing control (will read cards while GND is short / 與 GND 短路讀卡)
6. Green / 綠 → To detect Reader / 偵測讀頭
7. Brown, White / 棕白 → Power (-)
8. Brown / 棕 → Power (+) ┐ ★ 9~24V DC power output, same as BF-50.
DC 9~24V (輸出) 和 BF-50 輸入電壓相同
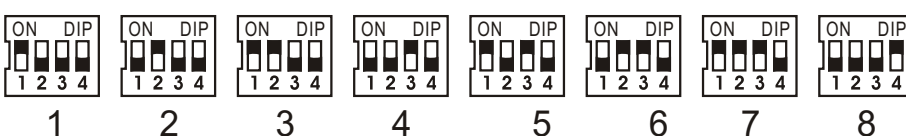
C. Jumper setting descriptions / 背面各短路片狀態功能説明

Jumps	Function / 功能	■	▢▢
J2	Emergency / 緊急模式	Short / 短路: enable / 開啟	Open / 未短路: disable / 關閉
J8	Buzzer / 蜂鳴器	Short / 短路: enable / 開啟	Open / 未短路: disable / 關閉
J9	Sensor looping diagnostic / 磁簧線路檢測	Short / 短路: disable / 關閉	Open / 未短路: enable / 開啟

● Connect BF-50 with Sensor / BF-50 接磁簧
1. J9 Short No circuit looping diagnostic test.
   J9 短路呈現關閉狀態時，無線路檢測功能
2. While J9 is setting under Open (enable) status, circuit is capable of auto looping diagnostic test.
   當 J9 未短路呈現開啟狀態時，具線路檢測功能磁簧接線如下：

Sensor ── **BF-50**
6.2K 1K
Sensor
GND

J2 ▨▨▨ J9
J8

D. Door number setting / 設定門號

ON DIP
1 2 3 4
1

ON DIP
1 2 3 4
2

ON DIP
1 2 3 4
3

ON DIP
1 2 3 4
4

ON DIP
1 2 3 4
5

ON DIP
1 2 3 4
6

ON DIP
1 2 3 4
7

ON DIP
1 2 3 4
8

BF-20 & BF-50 Comparison Table

Model name Functions	BF-20	BF-50
Multi-door or Single-door controller readers support	Yes	Yes
Watch Dog built-in	Yes	Yes
Working Voltage (DC)	9-24V DC	
Working Current (mA)	300mA	< 900 mA
LED Control dry contact	N/A	Yes
Buzzer Control dry contact	N/A	Yes
Card Reader Sensor dry contact	N/A	Yes
Reader detecting dry contact	N/A	Yes
Wiegand IN communication dry contact	1	2
RS485 communication dry contact	Yes	Yes
Emergency mode dry contact	Yes	Yes
Emergency mode: Exit button's still available while disconnected with Terminal	Yes	Yes
Sensor dry contact	Yes	Yes
Buzzer Enable/Disable option	N/A	Yes
Sensor circuit detecting	N/A	Yes
Exit Button dry contact	Yes	Yes
Door Open Relay	1	
Event/Log Relay	2	
Door no. configurations	Main Door & Door no.1~8	Door no.1~8