# THRU-WALL DOUBLE LEVEL SENSOR DIRECTIONS
# 穿牆式雙液位感測器說明書

## TYPE SPECIFICATION / 型號規格

Lo level with signal output and alarm  CS093-3-L  低水位信號輸出與警報
Hi level with signal output and alarm  CS093-3-H  高水位信號輸出與警報

## FEATURES / 特　點

1. This is a capacitive sensor, Microcontroller Unit detects different dielectric constant of the non-conductive glass or plastic vessel and liquid, on which taking its change of capacitance to position the Hi-Low liquid level.
2. Pressing housing to set the liquid level.
3. Alarm & Color the liquid level.

1. 這是一種電容式感測器，微控制器檢測不同介電常數之玻璃、塑膠等非導電容器和液體，取其電容變化而將高低液位定位。
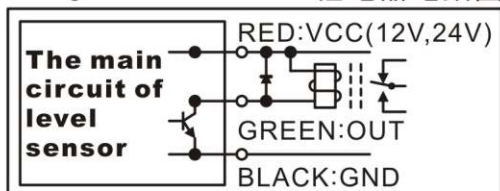2. 按壓外殼即可設定液位。
3. 警報和顏色指示液位。

## TECHNICAL SPECIFICATIONS / 規　格

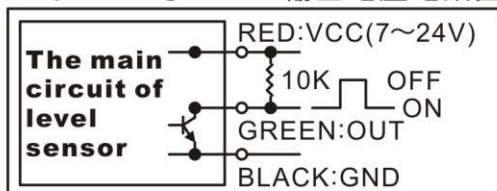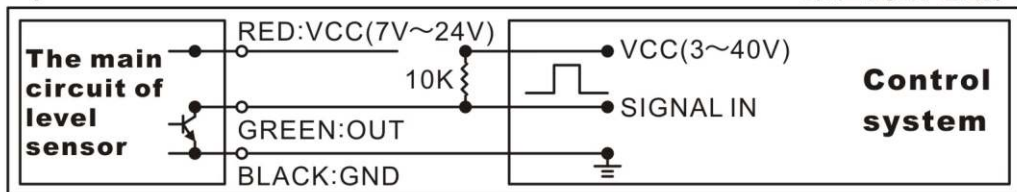| | | |
|---|---|---|
| Dimensions (LxWxH) | 35.3x17.9x64.6mm | 尺寸(長X寬X高) |
| Supply voltage | 7～24VDC | 供電電源 |
| Current supply (Enable alarm) | max 90mA | 電流供應(警報器動作) |
| Switching current | 3.3～40mA | 開關電流 |
| Maximum switching frequency | 1Hz | 最大開關頻率 |
| Ambient temperature range | -15～+60°C | 環境溫度 |
| Thickness of the vessel wall | 2～15mm | 容器厚度 |
| Protection class (IP67 be available) | IP 64 | 防護等級(IP 67可供應) |

## ELECTRICAL CONNECTION / 接　線　圖

### Relay circuit　繼電器電路圖

The main circuit of level sensor
RED:VCC(12V,24V)
GREEN:OUT
BLACK:GND

### Output voltage circuit 輸出電壓電路圖

The main circuit of level sensor
RED:VCC(7～24V)
10K  OFF ON
GREEN:OUT
BLACK:GND

### Open collector circuit　集極開路電路圖

The main circuit of level sensor
RED:VCC(7V～24V)
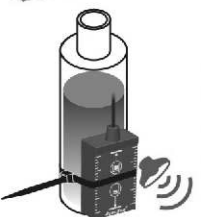10K
GREEN:OUT
BLACK:GND
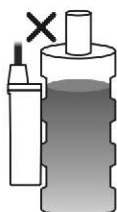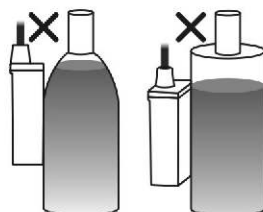
VCC(3～40V)
SIGNAL IN

Control system

## INSTALLATION

1. Fix the sensor onto a flat surface of glass or plastic vessel.
2. Attachment is done by hook and loop fasteners.
3. Thickness of the vessel wall can be 2～15mm.

1. Fix the sensor onto a pipe or bend vessel of nonconductive.
2. Attachment is done first by hook and loop fasteners, then tied by plastic straps.
3. Thickness of a pipe or bend vessel can be 2～15 mm.

**Note :**

**The contact surface is not irregularities.**

## 安　　裝

1. 將感測器安裝在平整的玻璃或塑膠容器外壁。
2. 附著是由粘扣帶粘接完成。
3. 容器壁厚可以2～15毫米。

1. 將感測器安裝在在非導電性的管道或彎形容器上。
2. 附著是先由粘扣帶粘接完成後，再用塑膠紮線帶綁緊。
3. 管道或彎形容器壁厚可以2～15毫米。

**註 :**

**接觸面不能凹凸不平。**

## HI-LO LEVEL SETTINGS

● **Steps of setting Hi-Lo level for type CS093-3-L(Lo level with signal output and alarm) as follow :**
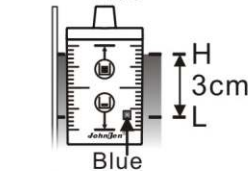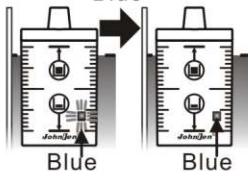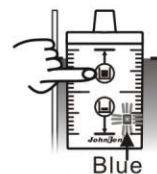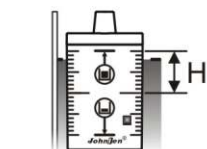
1. Decide the high liquid level of vessel.

2. A touch fasteners offered the hooks be attached onto a position about the high liquid level of vessel.

3. A touch fasteners offered the loops be attached onto the back of sensor.

4. The sensor be enabled, the LED flashes with purple color 8 times, then it skip to red color and alarm resound twice, and then alarm resound twice in every 6 seconds, it means that the level sensor be positioned in low level state or placed in the air. ※1
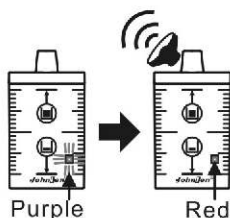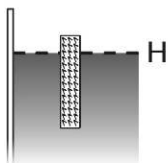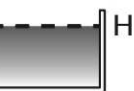
## 設定高低水位

● **型號CS093-3-L（低水位信號輸出與警報）設定高低水位步驟如下：**

1. 決定容器高水位。

2. 將有鉤面的粘扣帶貼於容器之高水位大約位置。

3. 將有毛面的粘扣帶貼於感測器的背面。

4. 將感測器通電，LED閃爍紫色8次後跳至紅色並警報聲2次，而後每隔6秒警報聲2次，表示液位感測器處在低水位狀態或置於空氣中。※1

Purple　　Red
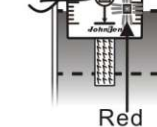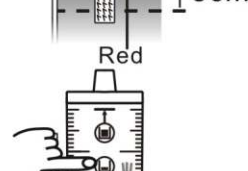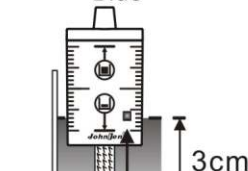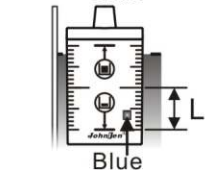
**Warning:**
**When using a different vessel and liquid, step 5~14 need to be reset.**

5. The Hi-level line of sensor aim at the high liquid level of vessel and press hook-and-loop together.
   Note: Range H of sensor can be set as the Hi-level line.

6. Press (■) button about 2 seconds, then LED flashes with blue color.

7. Left (■) button, the LED flashes with blue color about 10 times, then skip to blue color. ※2

8. LED skip to blue color, it means that the high liquid level be positioned.

9. Decide the low liquid level of vessel. (Suppose that a level difference 3 cm be set.)

   Note: Range L of sensor can be set as the Lo-level line.

10. Separate the touch fasteners, put the Lo-level line of sensor to aim at the high liquid level of vessel and press hook-and-loop together.

11. Press (■) button about 2 seconds, then LED flashes with red color.

注意：當有使用不同容器和液體時，步驟5~14需要重新設定。

5.將感測器之高水位線對準容器之高水位並將粘扣帶鉤面與毛面壓合。
   註：感測器H的範圍皆可設定為高水位線。

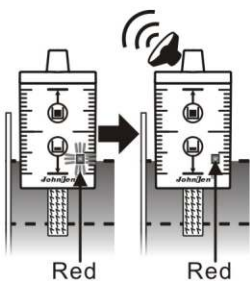6.按(■)鍵約2秒後LED會閃爍藍色。

7.離開(■)鍵LED會閃爍藍色約10次再跳至藍色。 ※2

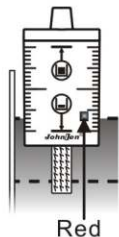8.LED跳至藍色，表示高水位定位完成。

9.決定容器低水位（高低水位差設定為3公分）。

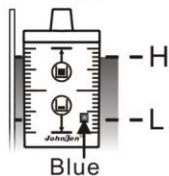   註：感測器L的範圍皆可設定為低水位線。

10.分開鉤面與毛面，將感測器之低水位線對準容器之高水位並將粘扣帶鉤面與毛面壓合。

11.按(■)鍵約2秒後LED會閃爍紅色。

Red → Red

12. Left button, LED flashes with red color about 10 times, then skip to red color and alarm resound twice, then alarm resound twice in every 6 seconds. ※3

12. 離開鍵LED會閃爍紅色約10次再跳至紅色並警報聲2次，而後每隔6秒警報聲2次。※3


Red

13. LED skip to red color, it means that the low liquid level be positioned.

13. LED跳至紅色，表示低水位定位完成。


-H
-L
Blue

14. The Hi-level line of sensor aim at the high liquid level of vessel again and press hook-and-loop together, of which it completes Hi-Lo level setting.

14. 再次將感測器之高水位線對準容器之高水位並將粘扣帶鉤面與毛面壓合，即完成高低水位設定。

● **Type of CS093-3-H (Hi level with signal output and alarm) be set Hi-Lo level steps as above, but there are differences ※1, ※2, ※3:**

● **型號CS093-3-H（高水位信號輸出與警報）設定高低水位步驟如上，但有 ※1、※2、※3差異：**


Purple → Red

4. The sensor be enabled, the LED flashes with purple color 8 times, then it skip to red color, it means that the level sensor be positioned in low level state or placed in the air. ※1

4. 將感測器通電，LED閃爍紫色8次後跳至紅色，表示液位感測器處在低水位狀態或置於空氣中。 ※1


Blue → Blue

7. Left button, the LED flashes with blue color about 10 times, then skip to blue color and alarm resound twice, and then alarm resound twice in every 6 seconds. ※2

7. 離開鍵LED會閃爍藍色約10次再跳至藍色並警報聲2次，而後每隔6秒警報聲2次。 ※2


Red → Red

12. Left button, LED flashes with red color about 10 times, then skip to red color. ※3

12. 離開鍵LED會閃爍紅色約10次再跳至紅色。 ※3

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