

# Programmable DC power supply

## 可程式直流電源供應器

### PW-8033P



# INSTRUCTION MANUAL

## 使用說明書



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# **PW-8033P**

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Programmable DC power supply

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# Safety Precautions:



## WARNING:

Normal use of test equipment exposes you to a certain amount of danger from electrical shock because testing must sometimes be performed where exposed voltage is present. An electrical shock causing 10 milliamps of current to pass through the heart will stop most human heartbeats. A Voltage as low as 35Volts DC or AC(rms) should be considered dangerous and hazardous since it can produce a lethal current under certain conditions. Higher voltages pose an even greater threat because such voltage can more easily produce a lethal current. Your normal work habits should include all accepted practices to prevent contact with exposed high voltage and to steer current away from your heart in case of accidental contact with high voltage. You will significantly reduces the risk factor if you know and observe the following safety precaution.

- (1) Don't expose high voltage needlessly. Remove housings and covers only when necessary. Turn off equipment while making test connections in high voltage circuits. Discharge high voltage capacitors after removing power.
- (2) If possible. Familiarize yourself with the equipment being test and the location of its high voltage points. However, remember that high voltage may appear at unexpected points in defective equipment.
- (3) Use an insulated floor material or large, insulated floor to stand on and an insulated work surface on which to place equipment and make certain such surface are not damp or wet.
- (4) Use the time proven "**one hand in the pocket**" technique while handling an instrument probe. Be particularly careful to avoid contacting a nearly metal object that could provide a good ground return path.
- (5) When testing AC power equipment, remember that AC line voltage is usually present on some power input circuits such as the on-off switch, fuse, power transformer etc. ant time the equipment is connect to an AC outlet, even if the equipment is turned off.
- (6) On test instruments or any equipment with 3-wire AC power plug use only 3-wire outlet. This is a safety feature to keep the housing or other exposed elements at earth ground.

# General Description:

## 1. Introduction:

The model PW-8033P is a **Programmable DC power supply** with microprocessor (MPU) controlled circuits and USB interfaces. It can totally meet your demands on testing.

The voltage and current are controlled by a 12-bit D/A converter, and the resolutions can be as high as 10mV and 1mA respectively.

The digitized system enables you to input all the data via keyboard with and convenience.

The protections against Over Voltage and Over Current are completely set by software to ensure the safety of user and instrument.

## 2. Features:

- (1) Easy operation.
- (2) High resolution, 10mV and 1mA.
- (3) Separate 4 digit displays for Voltage and current for both variable output.(4 displays).
- (4) High stability with less drift.
- (5) Protection against Over Voltage, Over Current and Over Load.
- (6) Memory of data base: 9 sets.
- (7) Self-test with the displaying of error messages.
- (8) Operate automatically according to the preset time.
- (9) USB interface.
- (10) Operation modes: Serial, Normal
- (11) Conform to the safety standards of UL CE LVD...etc.
- (12) Input Voltage selection on rear side (115V / 230V)

# Notice Before Operation:

## 1. Introductions:

This unit is test prior to shipment. It is therefore ready for immediate use upon receipt. The initial physical inspections should be made to ensure that no damage has been sustained during shipment.

## 2. Unpacking:

Inspect the packing box on receipt for any external damage. If any external damage is evident, remove the instrument and visually inspect it's case and parts for any damage. If damage to the instrument is evident, a description of the damage should be noted on the carrier's receipt and signed by the driver or carrier agent. Save all shipping packing for inspection. Forward a report of any damage to the agent through which the unit is procured.

Retain the original packing in case subsequent repacking for return is required. Use of the original packing is essential.

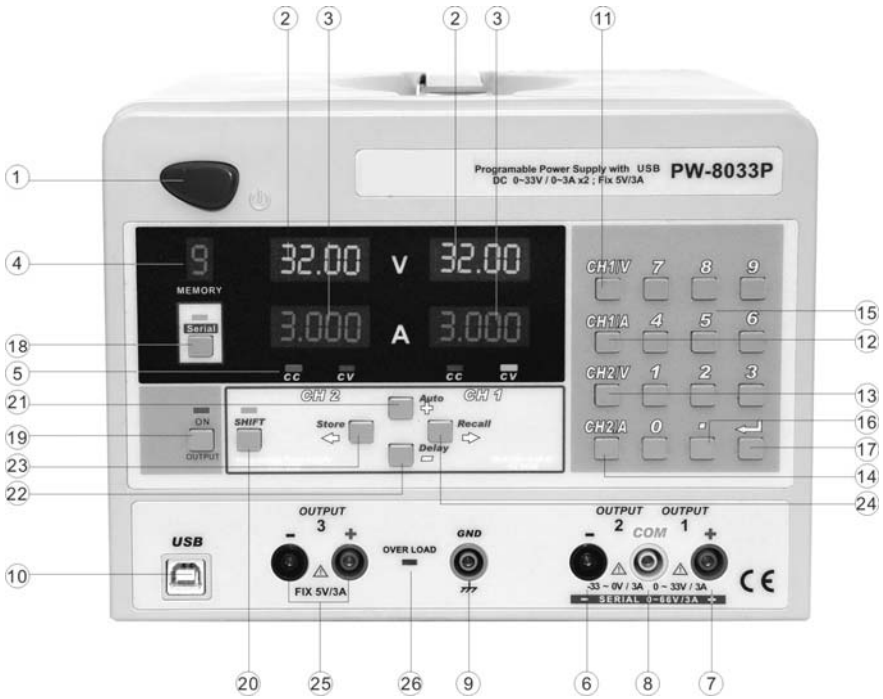
## 3. Input Power Requirements:

The instrument can operate on 115V or 230V, 50 or 60Hz Line selector plug on the rear panel allows you to select the line voltage. Before connecting the power plug to an AC line outlet, **be sure to check that voltage Selector plug is set in the correct position corresponding to the line voltage** in your location and the fuse rating is as shown in the table.

SELECTOR	LINE VOLTAGE	FUSE
115V	100 – 125V 50/60Hz	6A
230V	220 – 240V 50/60Hz	3A

**Overvoltage category II**

# Front Panel Description:



## Control/Indicator Description:

- ① **Power button:** Power On/Off.
- ② **Voltage display:**  
Indicate the setting Voltage of CH1 and CH2 or the testing voltage value.
- ③ **Current display:**  
Indicate the setting current of CH1 and CH2 or the testing current value.
- ④ **Memory Display:**  
Indicate the present data location number in Memory.
- ⑤ **Status Display:** Indicate the operation status.
- ⑥ **- Output BNC (CH 2):** Negative output terminal.
- ⑦ **+ Output BNC (CH 1):** Positive output terminal.



⑧	<b>COM BNC connector:</b> Output reference terminal.
⑨	<b>GND BNC connector:</b> Ground terminal.
⑩	<b>USB Input terminal:</b> The power supply support below OS system, Windows 9X, Window ME, Window XP etc.
⑪	<b>CH1V:</b> Enter CH1 voltage mode.
⑫	<b>CH2V:</b> Enter CH2 Voltage mode.
⑬	<b>CH1A:</b> Enter CH1 Current mode.
⑭	<b>CH2A:</b> Enter CH2 Current mode.
⑮	<b>0~9:</b> Data input..
⑯	<b>“ • ” :</b> Float point.
⑰	<b>“↵”:</b> Execute.
⑱	<b>Serial button:</b> Push this Button to enter “Serial” mode and light the LED, Push again the instrument will back to Normal mode.
⑲	<b>OUTPUT button:</b> Push to turn on output and light the LED. Push again to turn off.
⑳	<b>SHIFT button:</b> Push this button to enter next Function.
㉑	<b>↑ (Auto):</b> Push this key to increase the setting, value, or push [ <b>SHIFT</b> ][↑]key and this key to enter Auto function.
㉒	<b>↓ (Delay):</b> Push this key to Decrease the setting value, or push [ <b>SHIFT</b> ][↓]key and this key to enter Delay function.
㉓	<b>⇐ (Store):</b> Push this key to shift the digit would be changed to the left one, or push the [ <b>SHIFT</b> ][⇐]key and this key to the Store function.
㉔	<b>⇒ (Recall):</b> Push this key to shift the digit would be changed to the right one, or push the [ <b>SHIFT</b> ][⇒]key and this key to Recall function.
㉕	Fixed 5V /3A output: Standard 5V / 3A power output.
㉖	Over Load indicator.

# Rear Panel Description:



## Control/Indicator Description:

②⑦ **Heat sink:** Heat dissipation for power transistor

②⑧ **Ventilation Fan:** 8" 24V DC fan

②⑨ **Power input socket.**

③① **The input power voltage indicator:**

The “△” mark show the input line voltage been set.

③② **Fuse Holder and Input Voltage Selector:**

The selected input voltage is set the voltage marked on the holder to the “▽” mark on the holder.

# Operating Instructions:

## NOTE:

Before applying power to unit, make sure that input voltage setting is correct and the ventilation holes are not blocked. Ensure the Ventilation Fan is working well ( it should turn on at power on condition).

Do not load the output if FAN is not working other wise it may cause the overheating.

## System Configuration:

The PW-8033P works in independent mode, Series mode and Normal mode. User can select the desire mode by following the user instructions.

### 1. Load Connections:

(1) Normal Mode:

Connect the appropriate load between + Terminal⑦ (Red) and COM⑧ (Yellow) terminal of output 1 for 0 to +32V or COM⑧ (Yellow) and –Terminal⑥ (Black) terminal of output 2 for 0 to -32V.

(2) Serial Mode.

Connect the appropriate load between +Terminal⑦ (Red) and –Terminal⑥ (Black) terminal for 0 to 64V output.

(3) Fixed 5V / 3A output.

This is the standard 5V/3A power output provided for supplying the power TTL logic circuits. When the load exceed 3A. The output voltage will lower and the power will be under C.C mode

### 2. Output Voltage / Current Setting:

(1) Normal Mode:

(a) Output Voltage setting.

Push CH1/ V⑩ or CH2/ V⑪ key and the Number keys⑨ and then “Enter”⑫ key to set the output voltage.

Example:

Set CH1 at 10.5V output.

Push CH1/ V key and Number key 10.5 and “Enter” key. The output voltage of CH1 Will be 10.5V.

**NOTE:** If the CH1 Output “ + “ voltage, CH2 will be “ – “ voltage only.

(b) Output Current Setting.

Push CH 1 / A ⑫ or CH 2 / A ⑬ Key and The Number key⑭ and then “Enter”⑯ key to set the out put current.

Example:

Set CH 1 at 2.2A output.

Push CH 1/A key, and Number key 2.2 and “Enter”⑯. The output of CH1 will be 2.2A.

**NOTE:**

(b-1) If the CH1 output “ + “ voltage, CH 2 will be “ – “ voltage. The out current can be independent.

(b-2) When the output current is overloaded. The instrument will be switch to the “C.C” (constant current) mode. While output current is within the set value. It operate in “C.V.” (constant Voltage) mode.

(2) Serial Mode.

Push “Serial”⑰ button. The output of CH2 will be changed to the same as CH1 automatically. While push “Serial” button again. The instrument will back to the “ Normal” mode.

Example:

When CH2 was set at 5V, 1A and CH1 was set at 10V, 2.5A. Push “Serial” button. Both CH1 and CH2 output will be display as 10V, 2.5A.

The output will be  $\pm 10V / 2.5A$

### 3. Data Storage and Recall Setting:

(1) Data Storage Setting.

Push “Shift”⑲ , “Store”⑳, “Number Key (for the store position)” and then “ENTER”㉑

Example:

Push “Shift”, “Store”, “ 5” “Enter”. The data of both CH1 V, A and CH2 V ,A, data will be store in File No. 5.

(2) Data Recall Setting.

Push “Shift”⑲, “Recall”㉒, “Number Key” and then “Enter”㉑ The data will be shown on the displays.

Example:

Recall file 5 data.

Push “Shift”<sup>⑱</sup>, “Recall”<sup>㉓</sup>, “5”<sup>⑭</sup> , “Enter”<sup>⑰</sup>. The data will be shown on the displays.

#### 4. Automatic Execution:

##### (1) Delay Setting.

Push “Shift” <sup>⑱</sup>, “Delay” <sup>㉑</sup>, “Number”<sup>⑭</sup> (for the delay time, sec.), “Enter. The data will be store in the memory file number indicated on the panel “4” after the desired time

Example:

The output are: CH1 5V/3A and CH2 are 15V 2A. Push “Shift”, “Delay”, “1000”, “Enter” The memory No.<sup>④</sup> indicated “4”. The data will be store in location 4 after 1000sec. automatically.

##### (2) Auto-Execution

After the delay time been set. Push “Shift”<sup>⑱</sup>, “AUTO”<sup>㉒</sup>, “Enter” <sup>⑰</sup>.

The output will be execute from location No.1 to No.9 as the delay time been set in each location automatically. After execution, the data will be store again until the location been re-store again.

Example:

The delay of location are 50sec., No. 2 are 70sec. and No, 3 are 10sec. No 4 are 150sec.

Push “Shift, “Auto, ”Enter” key. The output will be the location 1, 50sec. then, No. 2, 70sec, No. 3,10sec, and No. 4, 150sec..... automatically.

#### 5. USB Input:

- (1) Setup the accessory “PW8033.exe” software disk on your computer. The setup program will guide program installation. PW-8033 support below OS system, Window 9X, Window ME, Window XP.
- (2) Power supply program will confirm COM port as Fig.1, if com 1 been used, PW-8033 program will select com 2. If no communication port can use. The computer will show Fig.2 after you have click “yes”. The program will stop.



Fig.1



Fig.2



Fig.3

(3) After the user have certified the COM. Fig.3, Fig.4 will display on your computer, connect the USB terminal and your computer by USB lead.



Fig.4

(4) The Power supply will enter the Com Port Mode and will be controlled by the computer only. The output will be according to the command from the computer. After you had set the data, push "Enter" key to execute.

(5) The output was set under "Off" as Fig.5 Click the **On/Off** to start output as Fig.6. Click it again will return to "off" position.



Fig. 5



Fig. 6

- (6) Serial mode been set on “Off” too. Click it to enter Serial Mode., The data of CH1 will be copy to CH2 automatically. Click it again to return to Normal mode.
- (7) Auto Mode. Click :Auto” of Fig.4. The computer will display Fig.7. Set the delay time ( in second). CH1V / A and CH2 V / A etc. to each memory step. Total 9 steps.

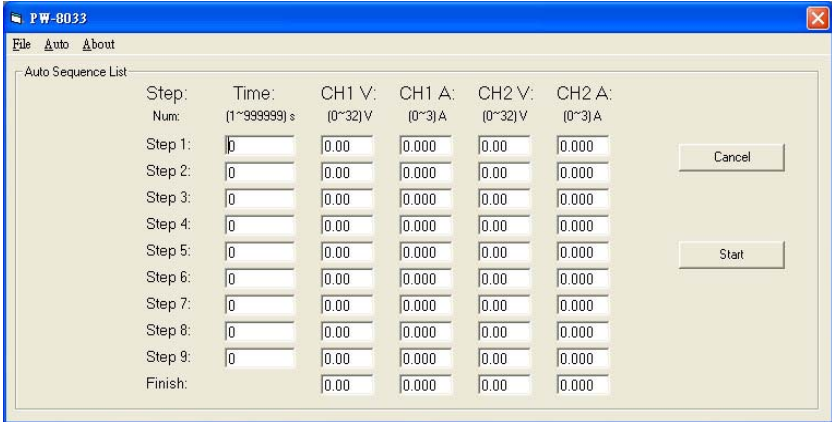


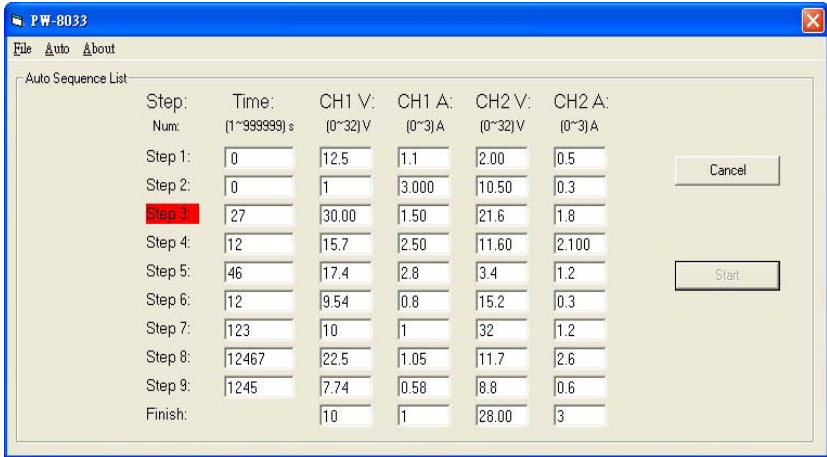
Fig. 7

- (8) After you had set the data. Click “Start” the output will execute from Step 1 to step 9 according the data been set automatically.



Fig. 8

(9) After 9 steps been executed. The computer will enter “**Finish**”.



(10) If you'll return to the front panel control. Switch off the power supply and disconnect the USB lead. And switch on the power supply again.



## Specifications:

Function		Value
Output	Voltage	0V ~ 32V, 0V ~ 32V, 5V Fixed
	Current	0 ~ -3A, 0 ~ 3A, 3A Fixed
	Over Voltage Protect	0V ~ -33V, 0V ~ 33V, Over Load
Load Effect	Voltage	$\leq \pm 20$ mV
	Current	$\leq \pm 10$ mA
Source Effect	Voltage	$\leq \pm 20$ mV
	Current	$\leq \pm 10$ mA
Resolution	Voltage	10 mV
	Current	1 mA
Program Accuracy (25°C)	Voltage	$\leq 0.5\% \pm 20$ mV
	Current	$\leq 0.5\% \pm 10$ mA
Ripple & Noise	Voltage	Ripple $\leq 1$ mVrms / 3mVp-p Noise $\leq 2$ mVrms / 6mVp-p
	Current	$\leq 3$ mA rms
Temperature Coefficient	Voltage	$\leq 100$ ppm + 20 mV
	Current	$\leq 150$ ppm + 10 mA
Read Back Resolution Accuracy (25±5°C)	Voltage	$\leq 0.5\% \pm 10$ mV
	Current	$\leq 0.5\% \pm 1$ mA
Response Time	Voltage Up 10~90%	$\leq 100$ mS
	Voltage Down 90~10%	$\leq 100$ mS
Read Back	Voltage	$\leq 100$ ppm ± 20mV

Temperature	Coefficient	$\leq 150\text{ppm} \pm 10\text{mA}$
Drift	Voltage	$\leq 100\text{ppm} \pm 20\text{mV}$
	Current	$\leq 150\text{ppm} \pm 10\text{mA}$
Track	Error	$\leq 0.1\% + 50\text{mV}$
Memory		1-9 sets
Timer For Working Loop	Step Time	1 sec ~ 999999 sec
	Resolution	1 sec
5V Fixed Output Output	Ripple	$\leq 2\text{mVrms}$
	Voltage Accuracy	$5\text{V} \pm 0.25\text{V}$
	Max Current	$3\text{A} \pm 0.02\text{A}$
Power Source		AC 115V, 230V $\pm 5\%$ 50/60Hz

## Maintenance:

### 1. Preventive Maintenance:

#### (1) General Maintenance:

##### (a) Preventive maintenance:

Clean and recalibrate the instrument in a regular basis to keep the instrument looking nice and working well.

##### (b) Cleaning:

Remove any dirt, dust and grime whenever they become noticeable on the outside cover with a soft cloth moistened with a mild cleaning solution.

##### (c) Servicing:

If the instrument ever becomes inoperative or damaged, refer servicing to a qualified repair facility.

## 2. Fuse Replacement:

If the fuse blows, the LED will not light and the instrument will not operate.

Replace only with the correct value fuse. The fuse is located on the rear panel adjacent to the power cord receptacle.

(1) Remove the fuse holder assembly as follows:

- (a) Unplug the power cord from rear of the instrument.
  
- (b) Insert a small screwdriver in the fuse holder slot (located between fuse holder and receptacle). Pry fuse holder away from receptacle.
  
- (c) When reinstalling fuse holder, be sure that the fuse is installed so that the correct line voltage is selected.

# PW-8033P

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## 可程式直流電源供應器

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## 一般安全概述:



日常生活中使用任何的電器產品都有可能會有觸電的危險。根據醫學報導，只要10mA的電流通過心臟，都有可能造成生命的危險。因此，我們將35V DC或35 V AC rms 以上都視為危險電壓，如使用不當都會影響生命安全。因此，請特別注意下列事項，以確保您自身的安全。

- (1) 非必要時，請避免靠近高壓電源，只在需要使用時才能將高壓電的遮蔽蓋打開。測試高壓電路前，也必須先將電源切斷，待測試棒接受後，再打開電源。如果有高壓電容，在測試中會充電，因此斷電後，也須另外進行放電步驟。
- (2) 儘可能先熟悉設備中高壓電的位置，這是避免觸電的方法之一，但是在故障的設備中，高壓電可能會亂竄，因此任何地方都有危險性。
- (3) 修理設備時，請在絕緣地板上或是有大塊面積的絕緣材料上工作，並注意是否潮濕或破損。
- (4) 在測量電路時，請習慣用單手操作，另一隻手請放在口袋中且勿接觸機器本身或其它導體，這樣可以避免電流通過心臟。
- (5) 使用 AC 電源設備時，更應注意自身的安全保護。因為 AC 電源會隨著導體電線等傳遞，就算將電源開關撥到 OFF，某些地方仍然會帶電，如變壓器、電源開關等，除非將插頭確實移開插座才能完全斷電。
- (6) 大部分的儀器設備所配用的電源線有 3 個接觸端子，其中一個端子是接地，可以避免設備的外殼帶電，但是也有一些例如家電設備等裝置只配用 2 個接觸端子的電源線，但大部分都會有塑膠外殼作為絕緣保護；當需要維修測試，必須除去塑膠外殼時，請特別注意其危險性。
- (7) 當使用3線電源插頭時，請勿將接地端拆除，因為只有將接地線牢牢接妥才能避免機殼漏電。

## 簡介:

### 1. 感謝您購買本儀器。

PW-8033P 為一台可程式直流電源供應器，它由微電腦控制並內建 USB 操作介面，能完全滿足您的測試需求。

電壓和電流均由一個 12bit 的 D/A 轉換器控制，解析度分別高達 10mV 和 1mA，本儀器為數位化系統，因此所有輸入之資料均可經由鍵盤打入非常方便，本儀器內建保護軟體，能夠完全防止任何過載之電壓或電流造成之傷害。

### 2. 特性:

- (1) 可鍵盤輸入，操作方便
- (2) 10mV 和 1mA 高解析度。
- (3) 四個顯示器分別顯示各通道輸出之電壓和電流。
- (4) 輸出穩定性非常高。
- (5) 內建過載保護系統。
- (6) 有 9 組記憶。
- (7) 內建自動偵測系統防止錯誤顯示。
- (8) 按照預先設定之時間自動操作。
- (9) 內建 USB 介面。
- (10) 可以正常或串聯操作。
- (11) 本機符合 UL, CE, LVD 等安全規範設計
- (12) 本機可使用 115V 或 230V 電源，可於後蓋位置操作切換。

## 操作前注意事項:

### 1. 前言:

本儀器在出廠前即已做過各項完整測試，因此只要在運送途中未發生任何損傷，使用者在接到儀器後立刻就可以使用。

### 2. 打開包裝箱:

使用者於接到本儀器後，請先查看包5裝箱外觀是否完整良好，如有破損，請打開包裝查看機器是否受損，附件是否完整，如有疑慮請讓運送者確認並簽名，以便要求供應商更換新品。

如果可能，請保留原來包裝材料，以便日後如果須要包裝時可用。

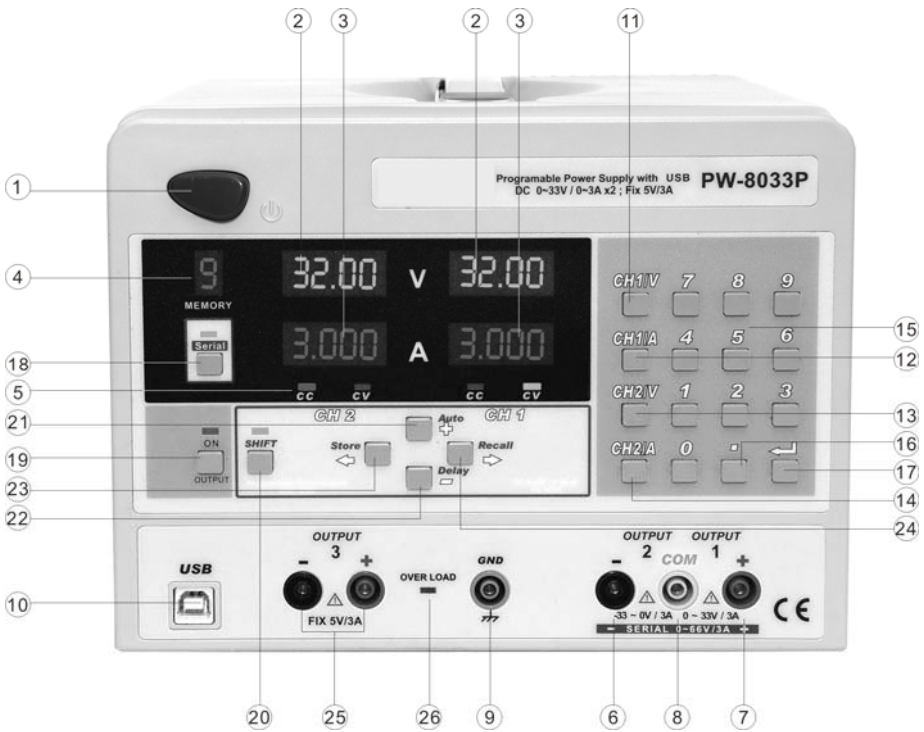
### 3. 使用電源:

本儀器於後蓋位置設有電源選擇器，提供115V或230V, 50/60Hz之電源使用。使用者在連接電源以前，請務必確認所使用之電源和選擇器上所指示之電源是否相符。電源電壓與保險絲規格如下:

選擇器	電源電壓	保險絲
115V	100 – 125V 50/60Hz	6A
230V	220 – 240V 50/60Hz	3A

### 4. 本儀器為 OVERVOLTAGE CAT III 。

# 前面板說明:



## 說明:

- ① 電源按鍵: 電源開/關。
- ② 電壓數字: 顯示 CH1 及 CH2 的電壓設定值或量測值。
- ③ 電流數字: 顯示 CH1 及 CH2 的電流設定值或量測值。
- ④ 記憶欄位: 顯示目前記憶欄位值。
- ⑤ 狀態顯示: 顯示執行狀態。
- ⑥ - 接頭(CH 2): 負端輸出接頭。
- ⑦ + 接頭(CH 1): 正端輸出接頭。
- ⑧ COM 接頭: 輸出參考接頭。
- ⑨ GND 接頭: 對地接頭。



⑩	<b>USB 接頭:</b> 本機支援 OS 系 , Windows 9X, Windows ME, Windows XP 等。
⑪	<b>CH1V 按鍵:</b> 進入 CH1 電壓調整模式。
⑫	<b>CH2V 按鍵:</b> 進入 CH2 電壓調整模式。
⑬	<b>CH1A 按鍵:</b> 進入 CH1 電流調整模式。
⑭	<b>CH2A 按鍵:</b> 進入 CH2 電流調整模式。
⑮	<b>0~9:</b> 數值輸入按鍵。
⑯	<b>“•”:</b> 小數點按鍵。
⑰	<b>“↵”:</b> 執行按鍵。
⑱	<b>Serial 按鍵:</b> 按一下則 LED 發亮, 進入串聯模式, 再按一下則關閉 LED 及恢復正常模式。
⑲	<b>OUTPUT 按鍵:</b> 按一下則 LED 發亮, 同時開啓輸出, 再按一下則關閉 LED 及輸出。
⑳	<b>SHIFT 按鍵:</b> 執行第二按鍵功能。
㉑	<b>↑ (Auto) 按鍵:</b> ↑: 增加設定數值。 Auto: 按 <b>[SHIFT][↑]</b> 進入自動執行模式。
㉒	<b>↓ (Delay) 按鍵:</b> ↓: 減少設定數值。 Delay: 按 <b>[SHIFT][↓]</b> 進入延遲時間設定模式。
㉓	<b>← (Store) 按鍵:</b> ←: 欲變動數值欄位左移一位。 Store: 按 <b>[Shift][←]</b> 進入儲存設定模式。
㉔	<b>⇒ (Recall) 按鍵:</b> ⇒: 欲變動數值欄位右移一位。 Recall: 按 <b>[Shift][⇒]</b> 進入恢復設定模式。
㉕	<b>5V /3A 輸出接頭。</b>
㉖	<b>過載指示 LED。</b>

## 背板說明:



說明:

- |    |                     |
|----|---------------------|
| ②7 | 散熱器。                |
| ②8 | 散熱風扇: 8" 24V DC 風扇。 |
| ②9 | 電源插座。               |
| ③0 | 輸入電壓指示。             |
| ③1 | 保險絲蓋。               |

## 操作說明:

### 1. 輸出電壓電流設定:

(1) 輸出電壓設定: 按[CH1V] 或 [CH2V], 數字按鍵, [↵]按鍵設定輸出電壓。

例如: 設定 CH1 的輸出電壓為 10.5V, 按[CH1V][1][0].[5][↵]。

(2) 輸出電流設定: 按[CH1A] 或 [CH2A], 數字按鍵, [↵]按鍵設定輸出電流。

例如: 設定 CH2 的輸出電壓為 2.2A 按[CH2A][2].[2][↵]。

若輸出電流過載, 工作模式將自動切換至 C.C.模式。

若輸出電流維持在設定範圍內, 則工作模式將維持在 C.V.模式。

### 2. 數值儲存與恢復:

(1) 數值儲存:

按[SHIFT][↵], 數字按鍵, [↵]按鍵將 CH1 與 CH2 的設定值如入目標儲存欄位。

例如: 將 CH1V/CH1A,CH2V/CH2A 設定值存入記憶欄位 5,

按[SHIFT][↵][5][↵]。

(2) 數值恢復:

按[SHIFT][⇒], 數字按鍵, [↵]按鍵將目標儲存欄位內的數值恢復為現有輸出設定。

例如: 恢復儲存欄位 2 的數值, 按[SHIFT][⇒][2][↵]。

### 3. 自動執行與延遲時間:

(1) 自動執行:

按[SHIFT][↑][↵]按鍵將依照儲存欄位 1 到 9 的順序依序自動負載。

例如: 自動執行模式:

儲存欄位 1:

CH1 Voltage = 5V

CH1 Current = 3A

CH2 Voltage = 15V

CH2 Current = 1A

Delay time = 150000 秒

按[**SHIFT**][↑][↵]

輸出:

CH1 Voltage = 5V            CH1 Current = 3A

CH2 Voltage = 15V        CH2 Current = 1A

150000 秒後變更為儲存欄位 2 數值。

## (2) 延遲時間:

按[**SHIFT**][↓], 數字按鍵, [↵]按鍵設定當前儲存欄位內的延遲時間。

例如: 設定當前儲存欄位內的延遲時間為秒,

按[**SHIFT**][↓][1][0][0][0][↵]

預設延遲時間為 0 秒。

## 4. 串聯工作模式:

按[**Serial**]則 CH1 設定值將比照 CH2 設定值;

再按一次[**Serial**] 即可離開串聯工作模式。

例如: Channel 1: Voltage = 5V, Current = 1A

Channel 2: Voltage = 10V, Current = 2A

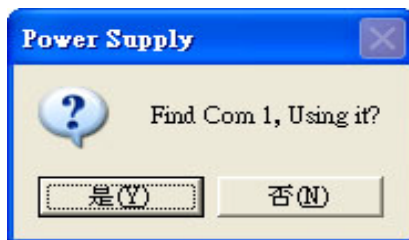
按[**Serial**]

Output voltage = ±10V, Output current = ±2A

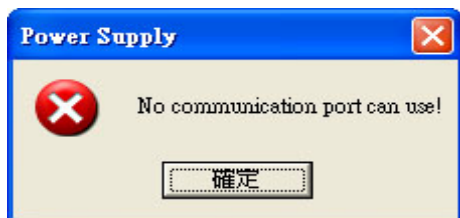
## 5. USB 操作說明:

將附件應用軟體光碟片安裝至電腦, 此軟體可支援 OS 系統, Windows 9X, Windows ME, Windows XP。

(1) 執行程式後電腦會偵測是否存在適合的連接端, 並詢問使用者是否使用。



(2) 若不存在適合的連接端或者使用者皆不使用則會顯示警告並結束程式執行。



(3) 使用者確認後會顯示所使用的連接端。



(4) 進入主執行畫面，操作方式同 PW-8033 面版，設定數值後按 Enter 執行。



(5) 輸出開關(預設值為關閉)。



(6) 點擊開啓輸出開關，開啓輸出，再點擊一次可恢復。



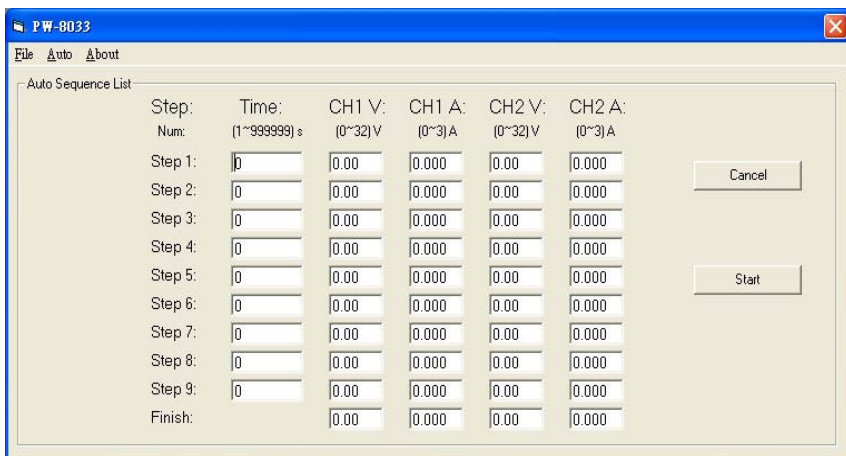
(7) 串聯模式開關(預設值爲關閉)。



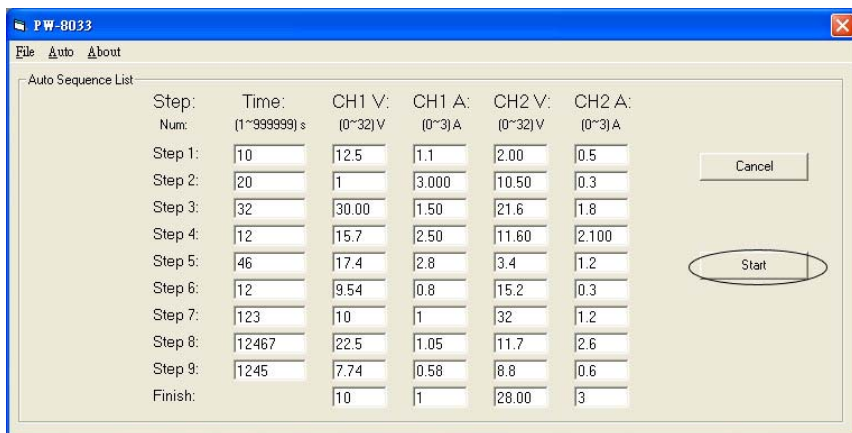
(8) 點擊開啓串聯模式，此時會將 CH1 數值複製到 CH2，再點擊一次可恢復。



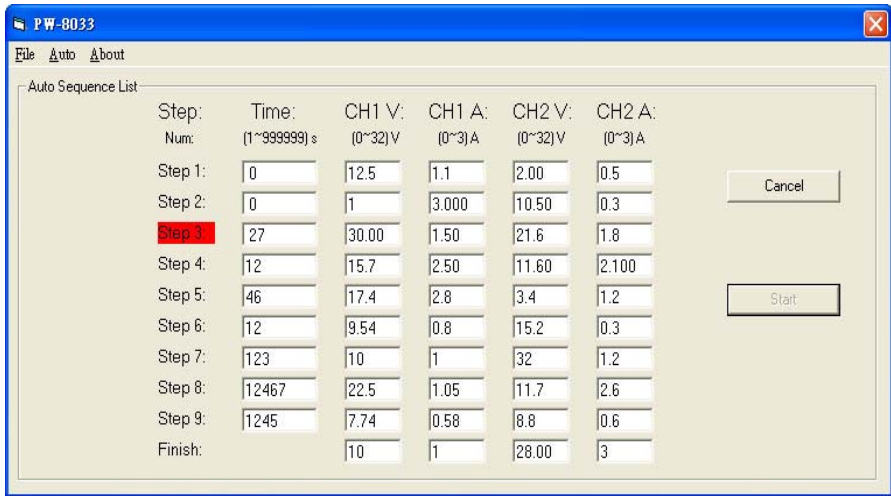
(9) 自動執行模式。



(10) 設定各組延遲時間，電壓電流後，按 Start 啓動自動執行。



(11) 當時間為 0 時會進入下一步驟，結束後恢復原狀。



(12) 如欲恢復面板操作，請關閉 PW-8033P 電源並移除 USB 連線，然後重新開機即可。



## 規格:

電壓單位: 10mV

電流單位: 1mA

數位顯示: 2 組四位數, 電壓/電流顯示

記憶組數: 9 組(1~9)

自動執行功能

USB 操作介面

動作模式: Serial

輸出開關

## 規格表:

功 能		讀 值
輸出	電壓	0V ~ 32V, 0V ~ 32V, 5V Fixed
	電流	0 ~ -3A, 0 ~ 3A, 3A Fixed
	過電壓保護	0V ~ -33V, 0V ~ 33V, Over Load
負載效應	電壓	$\leq \pm 20$ mV
	電流	$\leq \pm 10$ mA
電源效應	電壓	$\leq \pm 20$ mV
	電流	$\leq \pm 10$ mA
解析度	電壓	10 mV
	電流	1 mA
可程式誤差 (25°C)	電壓	$\leq 0.5\% \pm 20$ mV
	電流	$\leq 0.5\% \pm 10$ mA
突波與雜訊	電壓	Ripple $\leq 1$ mVrms / 3mVp-p Noise $\leq 2$ mVrms / 6mVp-p
	電流	$\leq 3$ mA rms
溫度係數 (0~40°C)	電壓	$\leq 100$ ppm + 20 mV
	電流	$\leq 150$ ppm + 10 mA

<b>顯示解析度誤差 (25±5°C)</b>	電壓	≤ 0.5% ± 10mV
	電流	≤ 0.5% ± 1mA
<b>反應時間</b>	電壓上升時間 10~90%	≤ 100mS
	電壓下降時間 90~10%	≤ 100mS
<b>顯示溫度係數</b>	電壓	≤ 100ppm ± 20mV
	電流	≤ 150ppm ± 10mA
<b>誤差值</b>	電壓	≤ 100ppm ± 20mV
	電流	≤ 150ppm ± 10mA
<b>Track</b>	Error	≤ 0.1% + 50mV
<b>記憶組</b>		1~9 sets
<b>迴圈延遲時間</b>	時間階數	1 sec ~ 999999 sec
	時間單位	1 sec
<b>5V 固定輸出</b>	雜訊	≤ 2mVrms
	電壓誤差	5V ± 0.25V
	最大電流	3A ± 0.02A
<b>電源</b>		AC 115V, 230V ±5% 50/60Hz

## **維護：**

### **1. 注意事項：**

- (1) 請勿在機器上面放置重物。
- (2) 請勿在機器上面或附近放至發熱物體。
- (3) 請勿將任何細線或針狀物插入散熱風扇孔。
- (4) 請勿拉扯電源線或測試線來移動機器，尤其是供電狀態下。
- (5) 請勿將散熱風扇孔阻擋。
- (6) 機器使用中請勿將上蓋打開。
- (7) 請定期校正機器以保持準確性
- (8) 請保持機器清潔。

### **2. 更換保險絲：**

當機器接上電源並開機後，LED 無法顯示時，請更換保險絲。

- (1) 移去電源線，斷開電源。
  - (2) 以小一字起子掀開保險絲座蓋(在本機電源插座上)。
  - (3) 取出舊的保險絲並換上新的正確保險絲。
  - (4) 蓋回保險絲座。
  - (5) 重新接上電源線，開機即可。
- (註：如機器仍無法正常操作，請與指定之經銷商聯絡。)

### **3. 清潔：**

請保持機器清潔，如需清除灰塵及髒污時，請使用輕軟乾淨的布沾上微量的中性清潔液輕輕的在產品外觀擦拭。



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