

DC High Voltage High Impedance Meter

直流高電壓高輸入阻抗電錶

HVC-804



INSTRUCTION MANUAL

使用說明書

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HVC-804

DC High Voltage High Impedance Meter

General Safety Instructions:

Bench-type high voltage meter, HVC-804, is a high voltage probe with a special connector design that has high input impedance ($10G\Omega$), and high resolution reading (0.0001KV) which is easy and safe to operate.

Because of the $10G\Omega$ high input impedance provided on the HVC-804, the loading effect is minimized. This way, the actual voltage value of the to-be tested circuit can be more accurately presented. Meanwhile, it also minimizes the errors applied to the test circuit. For instance when measuring the high voltage of CRT, cases like deviation of focus, unexpected image enlargement, or changes in the brightness, such similar abnormality can all be improved immediately. In addition, the high input impedance of $10G\Omega$ will become the best partner for high voltage low current output devices or for measurement of static equipment.

HVC-804 has a 3- range voltage selection switch. The users can select either 2KV, 20KV and 40KV for different application and resolution. When switching to a different voltage, all the ranges have the insulation protection circuit of a 40KV.

The built-in HVP-40 designated input end of this high voltage attenuation probe can replace the DC only digital electricity meter of a fixed $10M\Omega$ input impedance. Its LED display reading has correctly been converted, and can directly be loaded.

Please do not connect HVP-40 to auto range DMM. The auto range will change input impedance and make the error to convert the high voltage impedance value. HVC-804 is able to replace fixed style $10M\Omega$ input impedance DMM directly.

Read carefully this manual before using the instrument and respect the safety precautions.

Safety Precautions:

The steps outline the minimum basic safety precautions that must be followed when using this instrument.

- (1) Do not use the instrument in a damp environment or where there is risk of explosion.
- (2) Examine the instrument and make sure it is clean and dry. If in doubt, wipe with a clean, dry, lint-free cloth.
- (3) Look at the condition of the floor. It must be dry, clean and free of oil.
- (4) Verify that you are able to remain clear, dry and avoid contact with any exposed metal and / or other conductive material.
- (5) Examine the 1/1 probe before use. Make sure that it is in good condition. Any damage on the surface of the wires could cause you serious personal harm.
- (6) Only use the 1/1 probe accessory for directly high voltage measurements.
- (7) Examine the entry to your High Voltage test point. Make sure that you are able to bring the probe in to the point.
- (8) Always work within sight and hearing of another person. If an accident occurs, you will be aided quickly.

Specifications:

Max. Input Voltage: DC only. 0~40KV

Voltage Selector: 3 steps: 40KV/20KV/2KV

Input Impedance: 10GΩ (Full Range)

Display: 4 1/2 digits, 0.36" Red LED

Accuracy: ±0.5% ±2 digits

Max. Display Voltage: ±40.00KV

Temperature Coefficient: ≤ 100PPM °C

Resolution:

40KV Range: 0.01KV (10KV)

20KV Range: 0.001KV (1V)

2KV Range: 0.0001KV (0.1V)

Test Lead:

Voltage Insulation: 40KV DC

Length: about 2m

Wire: E35688 UL AWM, 3239/105°C/50KVDC/VW-1/22AWG/LL 21691
CSA TV-50.

Earth Clip:

3.5mm, 0.12mm x 64 tinned copper wire, about 90cm Long, E56290 UL
VW-1 / 2KV / 18AWG / 80°C.

Power Source: AC 115V/230V±10%; 50/60Hz

Power Consumption: 25W

Fuse:

Line Voltage	Frequency	Fuse
110~120V	50/60Hz	600mA
220~240V	50/60Hz	300mA

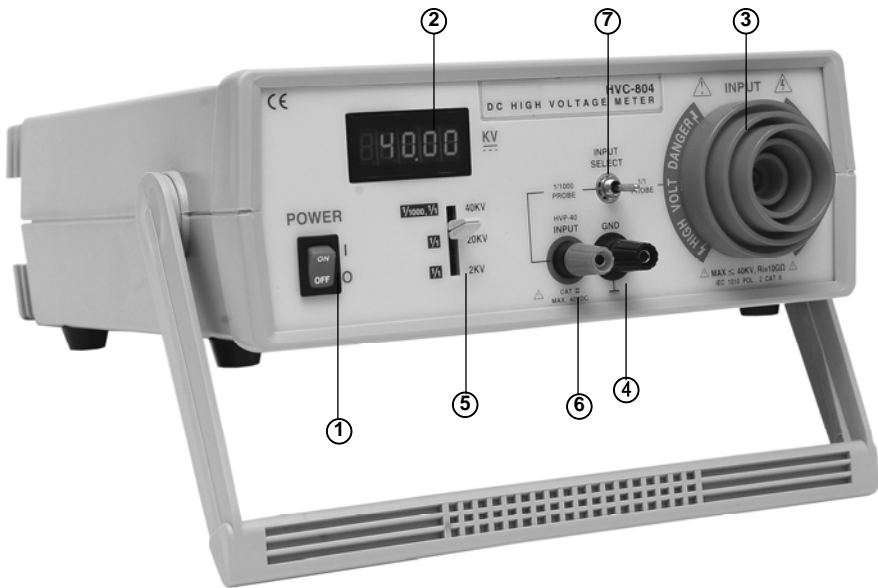
Operation Humidity: 0~40 °C; 0~80%RH

Storage Humidity: -20~60 °C; 0~90%

Dimension and Weight: 270 x 95 x 310 mm; 3.2KGS

Control and Indications:

Front Panel:



① **Power Switch:** When switch ON, the LED (2) will light up.

② **LED:** 4 1/2 digital display, RED 0.36" LED.

③ **High Voltage Input Terminal:**

Please use the specific high voltage probe . attached along with the machine. If found problems such as damaged parts, exposed metal or broken lines, please stop usage and contact the original supplier.

Max Input Voltage: $\pm 40V$ DC only

④ **Ground Terminal:**

The ground terminal has been connected to the ground of PCB and ground of Power Connector ⑥.

⚠ Before taking any measurement, make sure the terminal is connected to earth ground in good connection electrically.

⑤ **Voltage Selectors:**

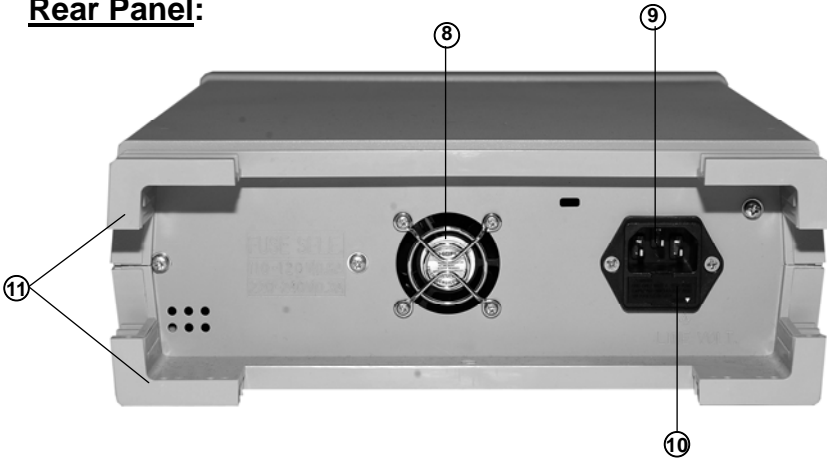
The display of LED can show the max voltage resolution by selecting different voltages. When it is over 1999, the LED will flash “0000”. Just adjust the voltage control to a higher voltage position.

⑥ **Built-in HVP- 40 input terminal**

⑦ **Input selector switch:**

Either chooses to input 1:1 or 1000:1 to measure through the HVP-40 high voltage probe.

Rear Panel:



⑧ **DC Fan:** Suction type, uses DC 12V, 0.1A

⑨ **AC Power Connector:**

Separable, uses the rear pillar for winding the cord.

⑩ **Input AC Power Selector and Fuse:**

For selecting the AC voltage of the instrument by aligning its arrow head mark in the corresponding position and fuse is inside.

AC Power	Fuse
110 ~120V 50/60Hz	600mA
220~240V 50/60Hz	300mA

⑪ **Rear pillar:**

As a supporting pillar and also for winding cord for easy storage.

Operation: (Using 1:1 input voltage)

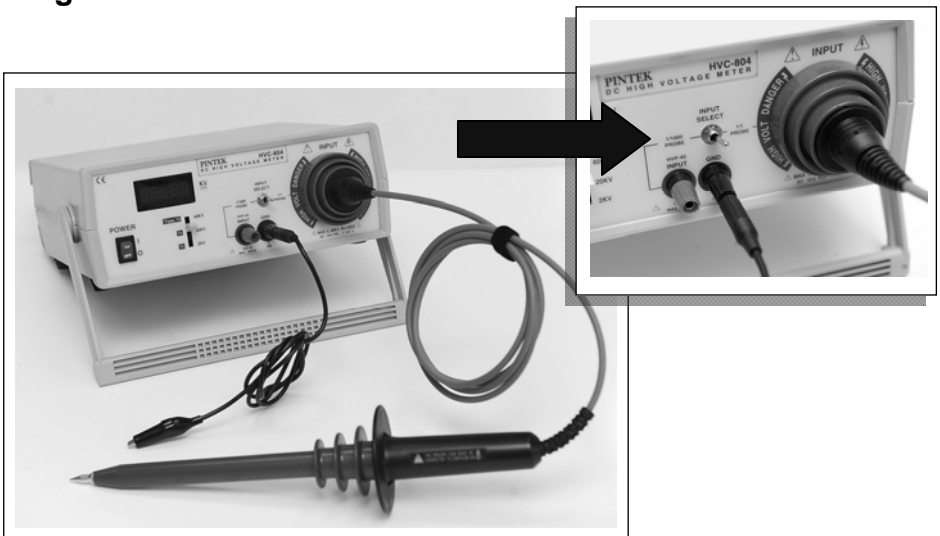
(Refer to Fig.1)

1. As show in figure, power ON will light up the red LED.
2. Connect GND of HVC-804 and GND of power source.
3. Select the power source and set the voltage switch of HVC-804 (ie, 2KV, 20KV or 40KV) to get a more accurate measurement. Push the input selection lever to 1/1 position (dial to the right)
4. Assure that the test lead of High Voltage Probe is connected to HVC-804 properly, and the tip of test probe touches the test point.

⚠ Before the above proper connection procedures are done, never turn on the power source of the HVC-804 to prevent arc and discharge which may damage the testing point.

5. The correct value of the voltage will display on the HVC-804 LED.

Fig.1



This machine is used as the voltage output display unit for HVP-40:

Step 1: As shown in the figure. The red LED will light up when the power is turned on.

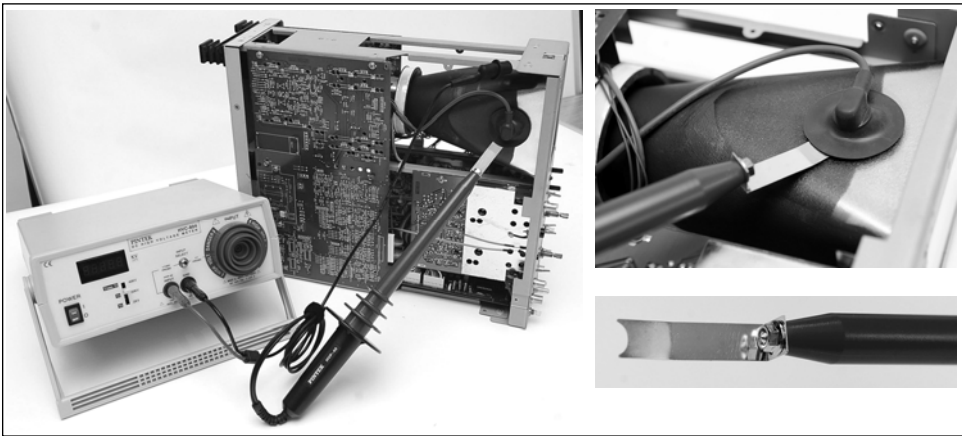
Step 2: Please insert the HVP-40 output end and the red and black banana plug into this machine's HVP-40 INPUT red and black terminal. The red and black banana plug must match with the corresponding terminal.

Step 3: Select the voltage measurement required. Please adjust according to the actual measurement value to achieve a more accurate measurement. Push the input selection lever to 1/1000 position (dial to the left).

Step 4: Assure that the banana plug of the High Voltage Probe is properly connected to the high pressure input terminal of the panel. Place the tip of the grip to the measuring point.

⚠ Before the above proper connection procedures are done, never turn on the power source of the HVC-804 to prevent arc and discharge which may damage the testing point.

Step 5: The correct voltage value will be displayed on the LED.



Warning:

Before using the probe, the batteries or specified power adaptor must be installed. See the battery installation instructions on page11.

- (1) Before taking any measurement by 1/1 probe, make sure the probe is clean, dry and good without damage on the surface.
- (2) Do not switch on the equipment to test before you are properly connected to any instrument.
- (3) Make sure the appropriate probe is installed in HVC-804 for measurement. Use 1/1000 probe for indirect High Voltage Input measurement.
- (4) Verify that measurement source is DC. Never use HVC-804 for AC measurement.
- (5) Before taking any measurement, make sure the earth ground connection is electrically good.
- (6) Make sure the AC power of HVC-804 matches the indicated voltage.
- (7) Always keep the input voltage of the instrument lower than 40KV(DC only) before connecting the probe tip or any conductive material to the input terminal of the instrument
- (8) Please make earth ground and the high voltage power input terminal is covered.

Maintenance:

For maintenance, only use specified spare parts.

The manufacturer cannot be held responsible for any accident arising following a repair, other than by its after sales service or approved repairers.

Cleaning:

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

HVC-804

直流高電壓高輸入阻抗電錶

簡述：

桌上型高電壓錶 HVC-804 是高輸入阻抗 (10GΩ)，高解析度(最大 0.0001KV)，附有特殊接頭設計的高壓探棒，操作安全且方便。

因為有 10GΩ 的輸入阻抗，因此負載效應降到最小，更能忠實呈現待測物的實際電壓值，可避免量測的同時造成原本電路電壓急遽下降，產生異常。如測量 CRT 高壓時，聚焦偏移或螢幕影像擴大，亮度突然變暗等異常現象，類似的異常可得到立即的改善，此外 10GΩ 的超高輸入阻抗會成為高電壓小電流輸出設備或靜電設備測量的最佳拍檔。

HVC-804 具有三段電壓檔選擇開關，使用者可以實際需要選擇 2KV，20KV，40KV 檔位，而換取更多的尾數點壓值，當你轉換電壓檔時，任何一檔都具備有 40KV 的絕緣保護電路。

本機內建 HVP-40 高壓衰減棒的專用輸入端可替代固定式 10MΩ 輸入阻抗的直流專用數字電錶。其 LED 顯示讀值已經正確換算過，可以直接讀取。此外，請勿將 HVP-40 接再自動換檔型的數字電錶，因為自動換檔時，將會變動輸入阻抗，造成高壓衰減比例換算嚴重錯誤；HVC-804 將可直接取代固定式 10MΩ 輸入阻抗的 DMM。

規格：

最大輸入電壓: DC only. 0~40KV

電壓選擇開關: 共 3 檔: 40KV/20KV/2KV

輸入阻抗: 10GΩ (所有檔位)

電壓顯示: 4 1/2 位, 0.36"紅色 LED

顯示誤差: $\pm 0.5\%$ ± 2 digits

最大顯示值: ± 40.00 KV

溫度係數: ≤ 100 PPM $^{\circ}\text{C}$

解析度:

40KV 檔位: 0.01KV (10KV)

20KV 檔位: 0.001KV (1V)

2KV 檔位: 0.0001KV (0.1V)

指定測試棒:

耐壓: 40KV DC

長度: 大約 2 公尺(含握柄)

線規: E35688 UL AWM, 3239/105 $^{\circ}\text{C}$ /50KVDC/VW-1/22AWG/LL 21691
CSA TV-50

接地線: 3.5mm, 0.12mm x 64 蕊鍍錫銅線, 長度約 90cm, E56290 UL
VW-1 / 2KV / 18AWG / 80 $^{\circ}\text{C}$.

電源輸入: AC 115V/230V $\pm 10\%$; 50/60Hz

電源消耗: 25W

保險絲::

電源	頻率	保險絲
110~120V	50/60Hz	600mA
220~240V	50/60Hz	300mA

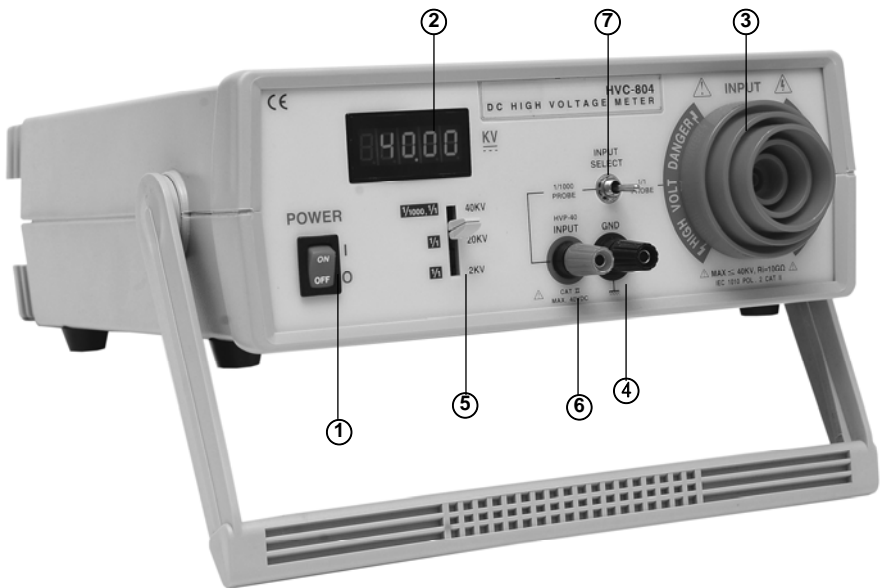
操作溫溼度: 0~40 $^{\circ}\text{C}$; 0~80%RH

儲存溼度: -20~60 $^{\circ}\text{C}$; 0~90%

尺寸/重量: 270(寬) x 95(高) x 310(深) mm; 3.2KGS(17PB)

面板指示說明：

前面板說明：



① **電源開關：** 電源 ON 時 LED ② 亮起。

② **LED 顯示器：** 4 1/2 位數字型顯示，紅色 0.36"LED。

③ **高輸入端：**

請指定使用本公司隨機所附贈的專用高壓探棒，如果發現有破損，金屬外露，斷線等問題，請立即停用，並與原供應商聯絡。

④ **接地端子：**

本點與基板地及電源地相連接，因此在量測前請先確認本接地端已連接妥當才可量測。

⑤ **電壓選擇器：**

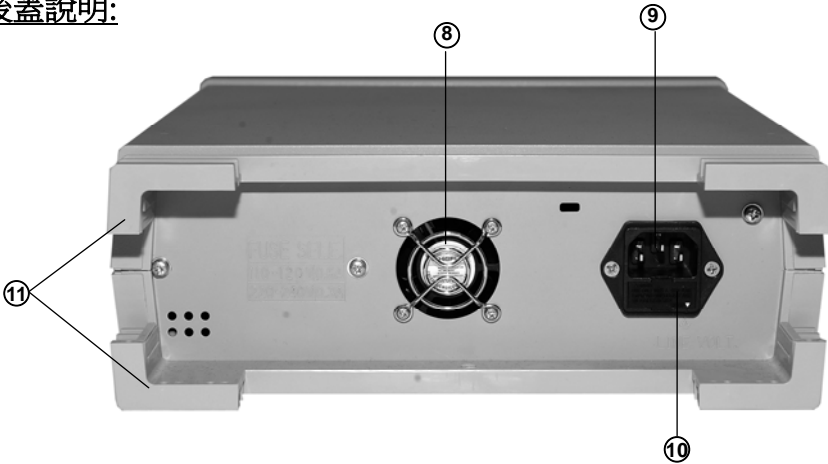
可依照實際量測電壓選擇不同的電壓檔位達成獲取最大的電壓解析度，當超出"1999"最大顯示值時，LED 顯示器上會出現"0000"閃爍狀態，此時只要將電壓選擇器往上撥至更大的電壓檔位即可。

⑥ 內建 HVP-40 輸入端子。

⑦ 輸入選擇開關：

可以選擇 1:1 輸入或 1000:1 時透過 HVP-40 高壓棒測量。

後蓋說明：



⑧ 散熱風扇：吸出型，使用 12V/DC/0.1A。

⑨ AC 電源輸入座：

分離式，收藏時可利用後支柱捲繞。

⑩ 保險絲座：

電源	保險絲
110 ~120V 50/60Hz	600mA
220~240V 50/60Hz	300mA

⑪ 後支柱：

除了當作支撐柱外還可以捲繞電線以方便收藏。

操作方式：(使用 1:1 輸入端。)

(如圖 1.)

步驟一，如圖示，按電源 ON 開機後，紅色 LED 會顯示。

步驟二，將地線(GND)連接妥當及另一端接到待測物的地端。

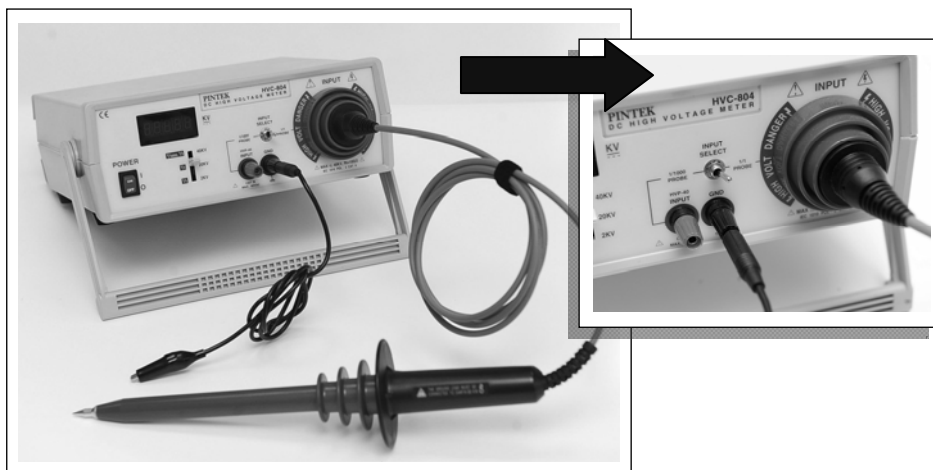
步驟三，選擇電壓量測檔，請依實際量測值調整更換檔位以換取更多位數，並將輸入選擇桿撥至 1/1(向右撥)。

步驟四，請確實接受高壓棒附件的香蕉插頭端與本機面板的高壓輸入端，並將握把之末端尖頭放置於待測點。

⚠ 注意！ 請先將待測物電源關閉，待接受後才能開機，可避免電弧產生或造成放電，使待測物零件受損。

步驟五，正確電壓值顯示在 LED 上。

圖 1.



本機可當作 HVP-40 的電壓輸出顯示器：

(如圖 1.)

步驟一，如圖示，按電源 ON 後，紅色 LED 會顯示。

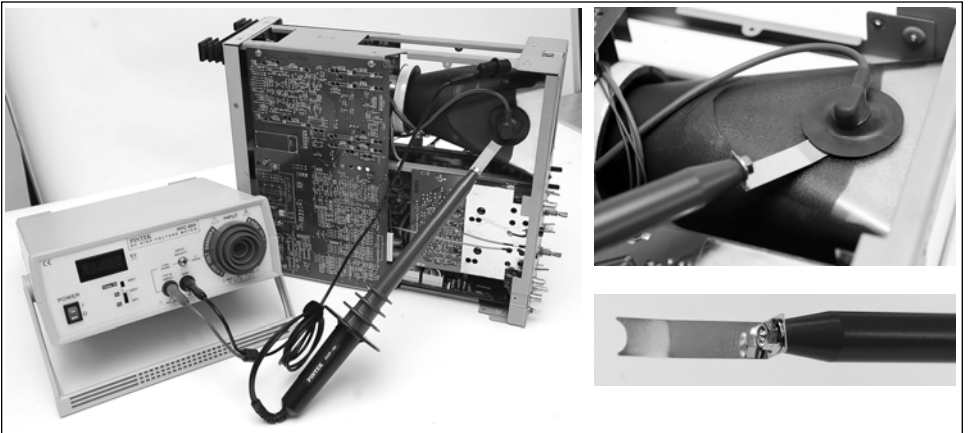
步驟二，請將 HVP-40 輸出端.紅色.黑色的香蕉插頭插入本機的 HVP-40 INPUT 紅色與黑色端子。紅色，黑色香蕉插頭必須相對應吻合。

步驟三，選擇電壓測量檔，請依實際量測值調整更換檔位以換取最多位數，並將輸入選擇桿撥向 1/1000 (向左撥)

步驟四，請確實接妥高壓棒附件的香蕉插頭端與面板的高壓輸入端，並將握把之末端尖頭放置於待測點。

⚠ 注意！ 請先將待測物電源關閉，待接妥後才能開機，可避免電弧產生或造成放電，使待測物零件受損。

步驟五，正確電壓值顯示在 LED 上。



注意事項：

- (1) 將儀器電源開啓前，請確認儀器的高壓輸入端有被妥善的包覆著。
- (2) 儀器的高壓數入端有與任何傳導性的物質由空氣中浮動接近時，請確認輸入電壓需低於 40KV(限 DC 使用)。
- (3) 在使用此儀器時，請確認測試棒的鱷魚夾一端須與接地端妥善接好，同時確認高壓輸入端有被妥善的包覆著。
- (4) 請確認本機使用的 AC 電源必須與指定電壓相符合(注意-電壓選擇鈕在 AC 插座下方，標示白點向上爲 220V，標示白點向下爲 110V)。

維護

保養時請使用指定的套件進行保養，製造廠對於銷售後由其他維修人員或(及)不合格的維修人員進行維修而產生的意外不負任何責任。

清潔：

請用少許的清潔劑倒在柔軟微濕的軟布上輕輕的將灰塵及髒污清理掉。

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