HIGH VOLTAGE DIFFERENTIAL PROBE

差動測試棒

CE

DP-8V

High Voltage Model

INSTRUCTION MANUAL

使用說明書

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● Differential Voltage Probe,

Read the instructions before using the instrument:

1. Must acquire a differential voltage probe & get the best service from instrument.
2. Read carefully the USER MANUAL.
3. Respect the safety precautions.

● SAFETY PRECAUTIONS

Warning, Risk of Electric Shock,

Respect the max input voltages

1. Max differential voltage: ±4 KV DC or 8 KVp-p or 2.8 KVrms
2. Max voltage between each input terminal and ground:
   2 KV DC or 1.4 KVrms

Do not use the probe in damp environment or where there is risk of explosion.
Do not use the probe with its case open.
Disconnect the inputs and outputs of the probe before opening the case.

● TO ORDER Differential Voltage Probe and Accessories:

- An Insulated BNC/BNC lead and two ∅4 mm, length 3 inches(BP-250).
- Supplied a Adapter preset 9 V DC[115 V(SP-115H) or 230 V(SP-230H)]
- 2 x high voltage IC clips(BP-266N.)
- 2 x Banana to Banana high voltage plug(BP-366A).
- 2 x Alligator plug(BP-276N).

DP-8V HIGH VOLTAGE DIFFERENTIAL PROBE

1. FEATURES

- The DP-8V differential voltage probe provides a safety means of measuring floating potentials for all models of oscilloscopes incomplete safety.
- It converts the high differential voltage (≦ 8 KV peak) into a low voltage (≦ 4.0 V) with reference to the earth for display on the oscilloscopes. It is designed specially for high voltage using. Frequency is up to 50 MHz.
- The BNC output is designed to operate on an input with an impedance of 1 MΩ. It is 2 times of the 50 Ω.
- DP-8V can observe more exact measured testing voltage from DMM. (Oscilloscope accuracy is 3%, and DMM is 10 times).

2. SPECIFICATIONS

(1) Bandwidth:
DC to 50 MHz (-3 dB)

(2) Attenuation: X10, X100, X1000

(3) Accuracy: ± 2%

(4) Voltage Input Ranges (DC + AC peak to peak)
≦ 8 KV for X1000, (i.e about 2.8 KVrms or ± 4 KV DC)
≦ 800 V for X100, (i.e about 280 Vrms or ± 400 V DC)
≦ 80 V for X10, (i.e about 28 Vrms or ± 40 V DC)

(5) Permitted Max Input Voltage
Max differential voltage: 8 KV (DC + AC peak to peak)
Max voltage between each input terminal and ground:
2 KV DC or 1.4 KVrms

(6) Input Impedance:
Differential: 20 MΩ // 2 PF
Between terminals and ground: 10 MΩ // 4 PF

(7) Output: ≦ ± 4.0 V

(8) Output Impedance: 50 Ω

(9) Rise Time: 7 ns

(10) Rejection Rate on Common Mode:

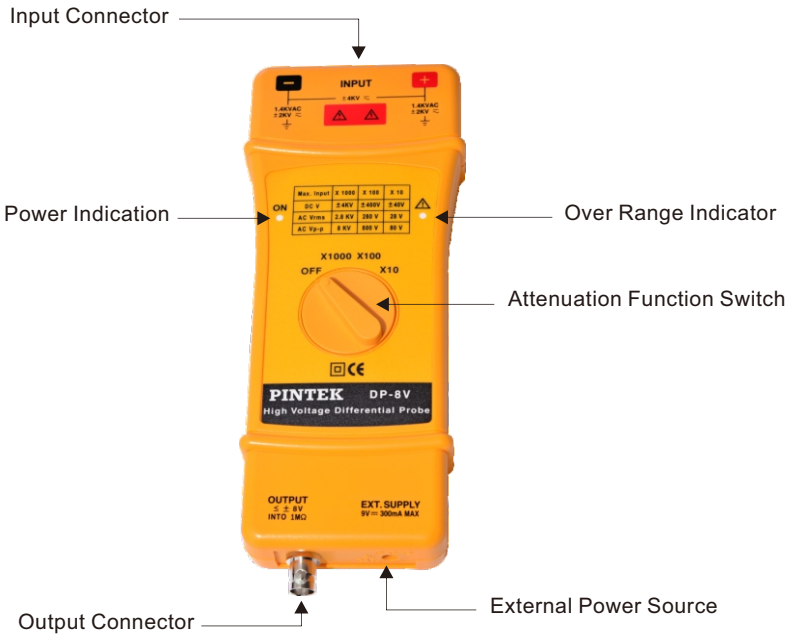
60 Hz: ＞ 80 dB ； 100 Hz: ＞ 60 dB ； 1 MHz: ＞ 50 dB

(11) Power Supply:

External 9 V DC power supply.

(12) Consumption: 200 mA max (1.8 WATT)

3. PANEL DESCRIPTION



4. OPERATING ENVIRONMENTAL CONDITIONS

	Reference	Use	Storage
Temperature	+20 °C ... +30 °C	0 °C ... +50 °C	-30 °C ... +70 °C
Relative Humidity	70% RH	10% ... 85% RH	10% ... 90% RH

(1) Dimensions and Weight:

218 x 83 x 30 mm; 390 g

(2) Electrical Safety to IEC 1010-1

- Dual Insulation
- Installation Category III
- Degree of Pollution 2
- Rated Voltage or Max Live-Earth: 2 KV DC or 1.4 KVrms

(3) CE Mark

Conforms to EN 50081-1 and 50082-1 standards

5. OPERATING PROCEDURE

- Connect to BP-366A and BP-266N(or BP-276N) to DP-8V input and place BP-266N(BP-276N) on the circuit to be tested.
- Connect BP-250 and DP-8V output and connect to oscilloscope.
- Adjust the vertical zero adjustment of the oscilloscope if necessary.
- Select the attenuation ratio* and the vertical deviation of the oscilloscope in accordance with the conversion table below.
- NB: The POWER light must come on.

The conversion table gives the real vertical deviation.

Attenuation	MAX Voltage Input Range (DC+AC Peak)	AC RMS MAX Input	DCV MAX Input
X1000	8 KVp-p	2.8 KVrms	± 4 KV
X100	800 Vp-p	280 Vrms	± 400 V
X10	80 Vp-p	28 Vrms	± 40 V

Vertical Deviation on the Oscilloscope in V/div	Real Deviation In V/div		
	X1000 Range	X100 Range	X10 Range
1	1 KV	100 V	10 V
0.5	500 V	50 V	5 V
0.2	200 V	20 V	2 V
0.1	100 V	10 V	1 V
50 m	50 V	5 V	0.5 V
20 m	20 V	2 V	0.2 V
10 m	10 V	1 V	0.1 V
5 m	5 V	0.5 V	50 mV
2 m	2 V	0.2 V	20 mV

[N.B]

The real vertical deviation in V/div is equal to the attenuation factor multiplied by the range of vertical deviation selected on the oscilloscope. It will be doubled in the case of use of a 50 Ω load.

Example:

With the probe on factor X10, the oscilloscope on 1 V/div, the real vertical deviation is 10 x 1 V/div = 10 V/div.

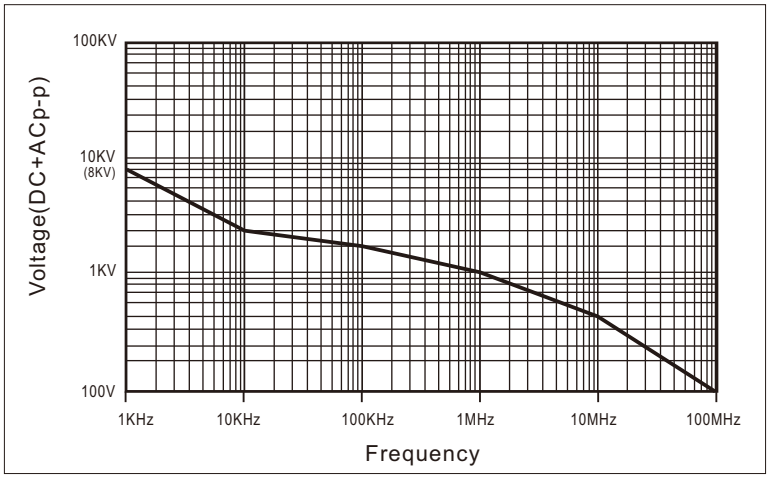
With a 50 Ω load on the input of the oscilloscope the deviation becomes: 10 V/div x 2 = 20 V/div.

6. EXT. POWER SOURCE

- Power consumption of the probe are 200 mA, thus it not suit for battery, please use the accessory adapter only, please use supplied adaptor 115V(SP-115H) or 230V(SP-230H).
- If there are any damage on the adaptor, please contact us and use the adaptor supply by us only. If the input power over 12 V DC will caused to the probe hard damage.

7. Voltage Derating Curve

8 KV: 1 KHz / 3 KV: 10 KHz / 2 KV: 100 KHz / 1 KV: 1 MHz /
500 V: 10MHz / 100 V: 100 MHz)



8. MAINTENANCE

For maintenance, only use specified spare parts.
The manufacturer can not be held responsible for any accident arising following a repair made other than its after sales service or approved repairers.

9. CLEANING

This probe does not require any particular cleaning. If necessary, clean the case with a cloth slightly moistened with soapy water.

10. WARRANTY

Unless notified to the contrary, our instruments are guaranteed against any manufacturing defect or material defect. They do not bear the specification known as the safety specification. Our guarantee, which may not under any circumstances exceed the amount of the invoiced price, goes no further than the repair of our faulty equipment, carriage paid to our workshops.

11. REPAIR

Maintenance, repairs under or out of guarantee. Please return to product to your distributor.

差動測試棒,

● 使用前請詳細閱讀使用說明

1. 請先獲得一支差動測試棒
2. 從使用說明取得最佳維修及服務
3. 請詳讀使用者操作手冊
4. 請注意安全注意事項

● 安全注意事項:

請小心注意觸電!

請注意最高輸入電壓!

最高差動電壓: ±4 KV DC 或 8 KV p-p 或 2.8 KV RMS

輸入端及接地端間的最大差動電壓: 2 KV DC or 1.4 KVrms

- 請勿使用此產品在潮濕的環境下或有易爆的風險下操作!
- 請勿使用此產品當此產品的盒蓋被打開!
- 當打開此產品的盒蓋時請將輸出及輸入端切斷!

● 訂購差動測試棒時內含

- 雙端BNC接頭的測試纜線,長度3英呎(BP-250)
- 一個9 V DC 轉換器 [客戶必需指定115 V(SP-115H)或230 V(SP-230H)]
- 一對高電壓專用的IC夾(BP-266N)
- 一對指定規格的雙端香蕉插頭高電壓傳輸線(BP-366A)
- 一對高電壓專用的鱷魚夾(BP-276N)

DP-8V 差動測試棒

1. 簡述:

- DP-8V 差動測試棒提供一個安全的絕緣儀器給所有的示波器使用, 它可以轉換由高輸入的差動電壓(≦ 8 KV PEAK) 進入一個低電壓 (≦ 4.0 V), 並且顯示波形在示波器上, 使用頻率高達50 MHz, 是高電壓專用型。
- 差動測試棒輸出標示是設計在操作示波器1 MΩ的輸入阻抗的相對衰減量, 當使用50 Ω 匹配器時衰減量剛好為2倍量。
- DP-8V 差動測試棒, 也建議在數字電表上觀測更精確的實際測試電壓值(示波器精確度為3%, 數字電表約精準10倍)。

2. 規格:

(1) 頻寬: DC - 50 MHZ (-3dB)

(2) 衰減: 共3檔 (X10, X 100, X1000)

(3) 精確度: ±2%

(4) 輸入電壓範圍 (DC + AC PEAK TO PEAK)

≦ 8 KV for X1000, (約 2.8 KVrms 或 ± 4 KV DC)

≦ 800 V for X100, (約 280 Vrms 或 ± 400 V DC)

≦ 80 V for X10, (約 28 Vrms 或 ± 40 V DC)

(5) 允許最高輸入電壓:

最高差動電壓: 8 KV (DC + AC PEAK TO PEAK)

輸入端及接地端間最高電壓: 2 KV DC or 1.4 KVrms

(6) 輸入阻抗:

差動: 20 MΩ//2 PF

單端到接地端間的輸入阻抗: 10 MΩ// 4 PF

(7) 輸出電壓: ≦ ± 4 V

(8) 輸出阻抗: 50 Ω

(9) 上升時間: 7 ns

(10) 雜訊抑制率:

60 Hz: > 80 dB ； 100 Hz: > 60 dB ； 1 MHz: > 50 dB

(11) 電源:

指定外接 9 V DC 電源(必須使用本公司指定品)

(12) 耗電: 最大耗電量200 mA (1.8瓦特)

3. 測試棒面板說明

4. 操作環境及狀況

	一般狀態	使用操作中	儲存
溫度	+20 °C ... +30 °C	0 °C ... +50 °C	-30 °C ... +70 °C
溼度	70% RH	10% ... 85% RH	10% ... 90% RH

(1) 尺寸及重量: 218 x 83 x 30 mm; 390 g

(2) 電子安全規範 IEC 1010-1

- 雙絕緣
- 安裝類目 III
- 污染程度 2
- 相關電壓或最大接地: 2 KV DC or 1.4 KVrms
- CE: EN50081-1 及 50082-1

5. 操作程序

- 將附件BP-366A 與 BP-266N (或BP-276N) 接起來後插入 DP-8V 的輸入端, 並將 BP-266N (或BP-276N) 與測量物接觸。
- 將BP-250 與 DP-8V 的輸出端連接, 並與示波器連結。
- 如有需要先調整示波器上的垂直開關。
- 將示波器上的衰減率及垂直開關調整到一致的位置, 如下表。
- 注意: 電源必須打開。

衰減	最大輸入電壓 (DC+AC Peak)	最大輸入 AC RMS	最大輸入 DCV
X1000	8 KVp-p	2.8 KVrms	± 4 KV
X100	800 Vp-p	280 Vrms	± 400 V
X10	80 Vp-p	28 Vrms	± 40 V

示波器上的 垂直偏向(V/DIV)	換算實際偏向(V/DIV)		
	X1000 檔	X100 檔	X10 檔
1	1 KV	100 V	10 V
0.5	500 V	50 V	5 V
0.2	200 V	20 V	2 V
0.1	100 V	10 V	1 V
50 m	50 V	5 V	0.5 V
20 m	20 V	2 V	0.2 V
10 m	10 V	1 V	0.1 V
5 m	5 V	0.5 V	50 mV
2 m	2 V	0.2 V	20 mV

[注意]

實際的垂直偏向是等於衰減乘上示波器上所選擇的垂直偏向. 如果另外使用50 Ω負載端子時,實際電壓值剛好是2倍量。

例如:

測試棒是 X10, 示波器的垂直偏向在 1 V/div, 其實際的垂直偏向為: 10 x 1 V/div = 10 V/div

若示波器輸入的負載是50 Ω, 偏向就為:

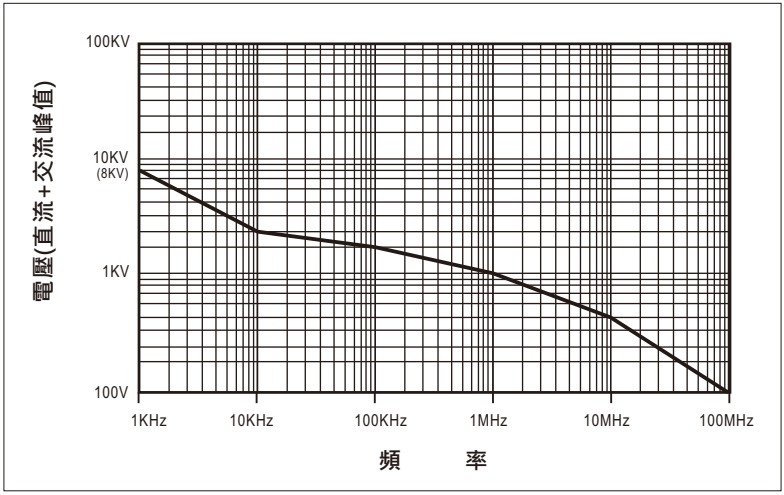
10 V/div x 2 = 20 V/div

6. 外接電源

- 本產品因耗電量高達200 mA, 因此指定使用電轉接器115 V專用(SP-115H)或230V專用(SP-230H)。
- 請勿使用非本公司指定品, 若因此造成任何損毀, 本公司概不負責。

7. 耐壓曲線

(8 KV: 1 KHz / 3 KV: 10 KHz / 2 KV: 100 KHz / 1 KV: 1 MHz /
500 V: 10MHz / 100 V: 100 MHz)



8. 維護:

保養此產品時請使用原廠指定的工具. 原廠將不負任何責任由其他不被認可的維修人員所做的維修。

9. 清潔:

此產品不需要任何特定的清潔. 如有需要, 請用輕軟乾淨的布沾上微量的清潔液輕輕的在產品外觀擦拭。

10. 保固:

除了在人為上的特意損壞, 本產品是受保固並可以維修的, 並不包含在安全規範的責任。

保固是以不超出發票上的金額, 零件的更換及運送的費用。

保固是僅在正常操作下而造成的損壞. 並不包含任何刻意的損壞, 操作上的錯誤, 機械上的操作不當, 保養不當, 負載或過壓。

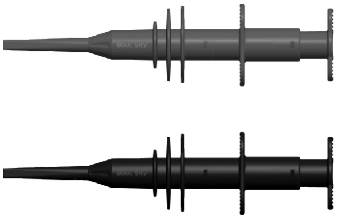
原廠的保固僅包含有限的單純更換損壞的零件. 使用者將不可歸據直接或間接的責任在原廠。

原廠的保固是賣出後的12個月內. 如有任意的非原廠的維修或更換零件, 原廠保固將自然取消。

11. 維修:

有任何的維修, 保養或更換零件是在保固以外, 請將產品退回原廠維修。

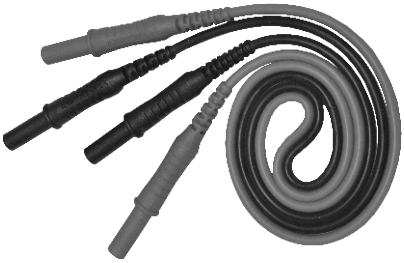
Accessories 附件圖:



BP-266N

BP-250

BP-276N



BP-366A

(Adapter)
115V: SP-115H
230V: SP-230H