

有源差分探頭

Differential Probe Active Probe

■UT-P31



INSTRUCTION MANUAL

使用說明書

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一、簡述：

UT-P31 差動測試棒提供一個安全的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 ($\leq 1500V_{PEAK}$) 進入一個低電壓 ($\leq 7V$)，並且顯示波形在示波器上，使用頻率達 100MHz，非常適合大電力測試、研發、維修使用。

差動測試棒輸出標示是設計在操作示波器 $1M\Omega$ 的輸入阻抗的相對衰減量，當使用 50Ω 匹配器進衰減量剛好為 2 倍量。UT-P31 差動測試棒，也建議選購本公司生產的 PL-10 阻抗轉換器，可以延伸差動測試棒的應用範圍-可以在電錶上觀測更精確的實際測量電壓值 (示波器精確度為 1%，數位電錶約精準 10 倍)。

二、規格：

(1) 頻寬：

DC-100MHz

(2) 衰減：x100, x1000

(3) 精確度： $\pm 1\%$

(4) 輸入電壓範圍 (DC+AC PEAK TO PEAK)

- $\leq 150V$ for x100, (約 50V RMS 或 DC)
- $\leq 1500V$ for x1000, (約 500V RMS 或 DC)
- (5) 允許最高輸入電壓：
最高差動電壓：1500V (DC+AC PEAK TO PEAK)
輸入端及接地端間最高電壓：5KV RMS
- (6) 輸入阻抗：
差動：8M Ω /1pF
單端到接地端間的輸入阻抗：4M Ω /2pF
- (7) 輸出電壓： $\leq 7V$
- (8) 輸出 阻抗：50 Ω
- (9) 上升時間：
3.5ns for x1000
3.5ns for x100
- (10) 雜訊抑制率：
60Hz: >80dB; 100Hz: >60dB; 1MHz: >50dB
- (11) 指定外接 6V DC 電源
- (12) 耗電：最大耗電量 150mA (0.9 瓦特)

三、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
濕度	$\leq 70\%RH$	10%...85%RH	10%...90%RH

- (1) 尺寸及重量：69x26x165mm;
- (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：5KV RMS

CE：EN50081-1 及 50082-1

四、操作程式

將 BP-250 與 UT-P31 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	X1000	X100
輸 入 電 壓 (DC+AC Peak)	1500v	150v

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，例如是使用負載 50Ω 的兩倍。

五、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。

六、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。

七、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。

八、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。

UT-P31

1.Features

The UT-P31 differential probe provides a safety means for measuring differential voltage to all models of oscilloscopes. It can convert the high differential voltage ($\leq 1500\text{Vp-p}$) into a low voltage ($\leq 7\text{V}$) and display on the oscilloscope. Its bandwidth is up to 100MHz, which is ideal for big power testing, development and maintain.

The UT-P31 is designed to operate with the $1\text{M}\Omega$ impedance oscilloscopes. When combine with the 50Ω load, the attenuation will be 2 times.

UT-P31 is recommend to use with our own manufactured PL-10 to expand the measuring with the electricity meter to observe more accurate measurement. The accuracy of oscilloscope is 1% and the electricity meter is about 10 times)

2.Specifications

- (1) Bandwidth: DC-100MHz
- (2) Attenuation: X100, X1000
- (3) Accuracy: $\pm 1\%$
- (4) Input voltage range (DC+AC PEAK TO PEAK)
 $\leq 150\text{V}$ for x100, (about 50V RMS)

$\leq 1500\text{V}$ for x1000, (about 500V RMS)

(5) Permitted max input voltage:

Max differential voltage: 1500V(DC+AC
PEAK TO PEAK)

Max voltage between each input terminal and
ground: 5KV RMS

(6) Input Impedance:

Differential: $8\text{M}\Omega$ /1pF

Between terminal and ground: $4\text{M}\Omega$ /2pF

(7) Output voltage: $\leq 7\text{V}$

(8) Output impedance: 50Ω

(9) Rise time:

3.5ns for x100

3.5ns for x10

(10) Rejection rate on common mode:

60Hz: $> 80\text{dB}$; 100Hz: $> 60\text{dB}$; 1MHz: $> 50\text{dB}$

(11) Power Supply: Only External 6V DC power
supply.

(12) Consumption: 150mA max (0.9 Watt)

3. 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 : 69x26x165mm; 500g
- (2) Electrical safety to **IEC 1010-1**
 - Dual insulation
 - Installation category III
 - Degree of Pollution 2
 - Related voltage or max line-earth : 5KV RMS
 - CE : EN50081-1 and 50082-1

4. Operating procedure

- Connect the probe to the oscilloscope with the insulated BNC/BNC lead.
- 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.

Attenuation ratio	X1000	X100
Voltage Input Range (DC+AC Peak to PEAK)	1500V	150V

[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.



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 repairs.



Cleaning

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

Warranty

Unless notified to the country,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 on further than the repair of our faulty equipment,carriage paid to our workshops.

Repair

Maintenance,repairs under or out of guarantee.Please return the product to the manufacturer.