

HIGH VOLTAGE DIFFERENTIAL PROBE

差動測試棒

CE

DP-25 1400Vp-p/25MHz

DP-50 7000Vp-p/50MHz

DP-100 7000Vp-p/100MHz

DP-14K 14KVp-p/75MHz

DP-20K 20KVp-p/20MHz



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 Instruction Manual.
3. Respect the safety precautions.

● **SAFETY PRECAUTIONS**

WARNING: Risk of Electric Shock,

1. Do not use the probe in damp environment or where there is risk of explosion.
2. Do not use the probe with its case open.
3. Disconnect the inputs and outputs of the probe before opening the case.
4. The probes are for indoor use only.

Respect the max input voltages:

DP-25:

1. Max differential voltage: 1400V (DC + AC peak) or 450 Vrms
2. Max voltage between each input terminal and ground: 600 Vrms

DP-50 & DP-100:

1. Max differential voltage: 7000V (DC + AC peak) or 2200 Vrms
2. Max voltage between each input terminal and ground: 6500 Vrms

DP-14 KV

1. Max differential voltage: 14 KV (DC + AC peak) or 4900 Vrms
2. Max voltage between each input terminal and ground: 6500 Vrms

DP-20 KV

1. Max differential voltage: 20 KV (DC + AC peak) or 7000 Vrms
2. Max voltage between each input terminal and ground: 6500 Vrms

● **TO ORDER Differential Voltage Probe and Accessories:**

- An Insulated BNC/BNC lead, length 100cm.
- Supplied a Adapter preset 9 V DC (115 V or 230 V)
- 2 x high voltage IC clips
- 2 x Banana to Banana high voltage plug
- 2 x Alligator plug

DP-25

High Voltage Differential Probe

DP-25 HIGH VOLTAGE DIFFERENTIAL PROBE

1. FEATURES

- The DP-25 differential probe provides a safety means for measuring differential voltage to all models of oscilloscopes.
- The DP-25 converts the high differential voltage ($\leq 1400V_{\text{peak}}$) into a low voltage ($\leq 7.0V$, with reference to the earth) and display on the oscilloscopes.
- The DP-25 is designed to operate with the $1M\Omega$ impedance oscilloscopes. When combine with the 50Ω load, the attenuation will be 2 times.
- We recommend to use PINTEK PL-10 with DP-25 to expand the measuring with DMM to observe more accurate measurement. The accuracy of oscilloscope is 3% and the DMM is less than 1%.
NOTE: If you connect DP-25 to the DMM without PL-10, the accuracy will be higher than 10%.

2. SPECIFICATIONS

(1) Bandwidth:

DC - to 25 MHz (-3 dB) for x 50, x 200

DC - to 15 MHz (for attenuation x 20)

(2) Attenuation: x 20, x 50, or x 200

(3) Accuracy: +/- 2%

(4) Voltage Input Ranges (DC + AC peak to peak)

$\leq 140 V_{\text{p-p}}$ for x 20, (i.e about 45 Vrms or DC)

$\leq 350 V_{\text{p-p}}$ for x 50, (i.e about 110 Vrms or DC)

$\leq 1400 V_{\text{p-p}}$ for x 200, (i.e about 450 Vrms or DC)

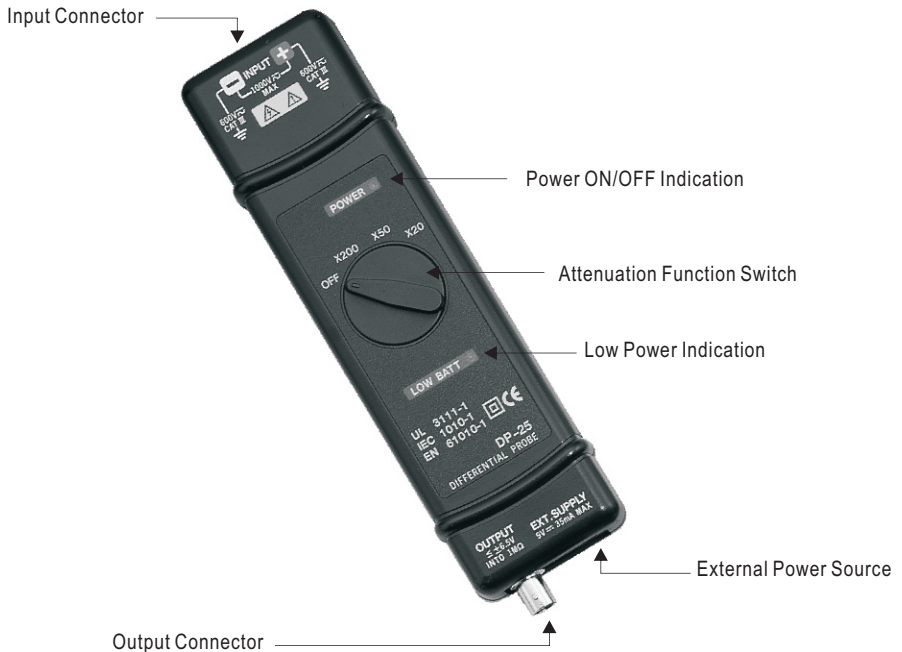
(5) Permitted Max Input Voltage

Max differential voltage: 1400 V (DC + AC peak to peak) or 450Vrms

Max voltage between each input terminal and ground:
600 Vrms

- (6) Input Impedance:
 Differential: $4\text{ M}\Omega / 1.2\text{ pF}$
 Between terminals and ground: $2\text{ M}\Omega / 2.3\text{ pF}$
- (7) Output: $\leq \pm 7.0\text{ V}$
- (8) Output Impedance: $50\ \Omega$
- (9) Rise Time: 14 ns for x 50, and x 200; 23.4 ns for x 20
- (10) Rejection Rate on Common Mode:
 60 Hz: $> 80\text{ dB}$; 100 Hz: $> 60\text{ dB}$; 1 MHz: $> 50\text{ dB}$
- (11) Power Supply: Only External 9 V DC power supply .
- (12) Consumption: 35 mA max (0.4 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:

195 x 55 x 30 mm; 250g

(2) Electrical Safety to IEC 1010-1

- Dual Insulation
- Installation Category III
- Degree of Pollution 2
- Rated Voltage or Max Line-Earth: 600 Vrms

(3) CE Mark

Conforms to EN 50081-1 and 50082-1 standards

(4) Indoor use only.

5. OPERATING PROCEDURE

- Connect the leads to the input and place the wire-grip on the circuit to be tested.
- 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.

The conversion table gives the real vertical deviation.

Attenuation	X 200	X 50	X 20
Voltage Input Range (DC+AC Peak)	1400Vp-p (±700VDC)	350Vp-p (±175VDC)	140Vp-p (±70VDC)

Vertical Deviation on the Oscilloscope in V/div	Real Deviation In V/div		
	x 200	x 50	x 20
1	200	50	20
0.5	100	25	10
0.2	40	10	4
0.1	20	5	2
50 m	10	2.5	1
20 m	4	1	0.4
10 m	2	0.5	0.2
5 m	1	0.25	0.1
2 m	0.4	0.1	40 m

[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 x 200, the oscilloscope on 0.5 V/div, the real vertical deviation is $200 \times 0.5 = 100$ V/div.

With a 50Ω load on the input of the oscilloscope the deviation becomes 200 V/div.

6. 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.

7. CLEANING

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

8. STORAGE

If the probe is not use more than 60 days, please store the probe in a dehumidified environment to keep dry.

9. 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.

It is applicable for normal use of our instruments, and does not apply to damage or destruction caused, notably by error in mounting, mechanical accident, faulty maintenance, defective use, overload or exceed voltage.

Our responsibility being strictly limited to the pure and simple replacement of the faulty parts of our equipment, the buyer expressly renounces any attempt to find us responsible for damages or losses caused directly or indirectly.

Our guarantee is applicable for twelve (12) months after the date at which the equipment is made available. The repair, modification or replacement of a part during the guarantee period will not result in this guarantee being extended.

10. REPAIR

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

11. ACCESSORIES

- ADP-110V or ADP-220V: AC Adapter.
- BP-250: BNC Plug to BNC Plug; $50\ \Omega$ Resistance , RG58C UL, Length 100cm.
- BP-356N: Banana Plug to Banana Plug Silicon Wire; UL 6KV, 18AWG, Length 60cm.(Red x 1pc , Black x 1pc)
- BP-256N: IC Clip, UL 1000V CAT III.(Red x 1pc , Black x 1pc)
- BP-276N: Alligator Clip, UL 1000V CAT II, 10A.(Red x 1pc , Black x 1pc)
- Instruction Manual(TINSE0004S4).

DP-50

High Voltage Differential Probe

DP-50 HIGH VOLTAGE DIFFERENTIAL PROBE

1. FEATURES

- The DP-50 differential probe provides a safety means for measuring differential voltage to all models of oscilloscopes.
- The DP-50 converts the high differential voltage ($\leq 7000V_{\text{peak}}$) into a low voltage ($\leq 7.0V$, with reference to the earth) and display on the oscilloscopes.
- The DP-50 is designed to operate with the $1M\Omega$ impedance oscilloscopes. When combine with the 50Ω load, the attenuation will be 2 times.
- We recommend to use PINTEK PL-10 with DP-50 to expand the measuring with DMM to observe more accurate measurement. The accuracy of oscilloscope is 3% and the DMM is less than 1%.
NOTE: If you connect DP-50 to the DMM without PL-10, the accuracy will be higher than 10%.

2. SPECIFICATIONS

(1) Bandwidth:

DC - to 50 MHz (-3 dB) for x 200, x 500 and x 1000

DC - to 25 MHz (for attenuation x 100)

(2) Attenuation: x 100, x 200, x 500, x1000

(3) Accuracy: +/- 2%

(4) Voltage Input Ranges (DC + AC peak to peak)

$\leq 700 V_{\text{p-p}}$ for x 100, (i.e about 230 Vrms or DC)

$\leq 1400 V_{\text{p-p}}$ for x 200, (i.e about 460 Vrms or DC)

$\leq 3500 V_{\text{p-p}}$ for x 500, (i.e about 1140 Vrms or DC)

$\leq 7000 V_{\text{p-p}}$ for x 1000, (i.e about 2300 Vrms or DC)

(5) Permitted Max Input Voltage

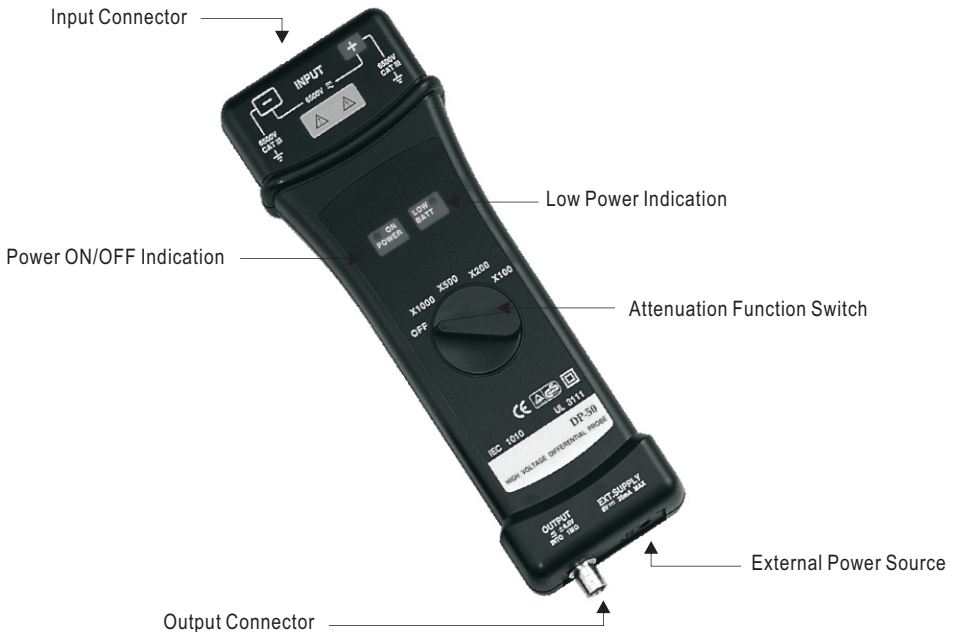
Max differential voltage: 7000 V (DC + AC peak to peak)

Max voltage between each input terminal and ground:

6500 Vrms

- (6) Input Impedance:
 Differential: $54\text{ M}\Omega / 1.2\text{ pF}$
 Between terminals and ground: $27\text{ M}\Omega / 2.3\text{ pF}$
- (7) Output: $\leq \pm 7.0\text{ V}$
- (8) Output Impedance: $50\ \Omega$
- (9) Rise Time: 7 ns for x 200, x 500, and x 1000; 14 ns for x 100
- (10) Rejection Rate on Common Mode:
 60 Hz: $> 80\text{ dB}$; 100 Hz: $> 60\text{ dB}$; 1 MHz: $> 50\text{ dB}$
- (11) Power Supply: Only External 9 V DC power supply .
- (12) Consumption: 35 mA max (0.4 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:

240 x 80 x 30 mm; 280g

(2) Electrical Safety to IEC 1010-1

- Dual Insulation
- Installation Category III
- Degree of Pollution 2
- Rated Voltage or Max Line-Earth: 6500 Vrms

(3) CE Mark

Conforms to EN 50081-1 and 50082-1 standards

(4) Indoor use only.

5. OPERATING PROCEDURE

- Connect the leads to the input and place the wire-grip on the circuit to be tested.
- 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.

The conversion table gives the real vertical deviation.

Attenuation	X 1000	X 500	X 200	X 100
Voltage Input Range (DC+AC Peak)	7000Vp-p (±3500VDC)	3500Vp-p (±1750VDC)	1400Vp-p (±700VDC)	700Vp-p (±350VDC)

Vertical Deviation on the Oscilloscope in V/div	Real Deviation In V/div			
	x 1000	x 500	x 200	x 100
1	1000	500	200	100
0.5	500	250	100	50
0.2	200	100	40	20
0.1	100	50	2	10
50 m	50	25	10	5
20 m	20	10	4	2
10 m	10	5	2	1
5 m	5	2.5	1	0.5
2 m	2	1	0.4	0.2

[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 x 200, the oscilloscope on 0.5 V/div, the real vertical deviation is $200 \times 0.5 = 100$ V/div.

With a 50Ω load on the input of the oscilloscope the deviation becomes 200 V/div.

6. 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.

7. CLEANING

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

8. STORAGE

If the probe is not use more than 60 days, please store the probe in a dehumidified environment to keep dry.

9. 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.

It is applicable for normal use of our instruments, and does not apply to damage or destruction caused, notably by error in mounting, mechanical accident, faulty maintenance, defective use, overload or exceed voltage.

Our responsibility being strictly limited to the pure and simple replacement of the faculty parts of our equipment, the buyer expressly renounces any attempt to find us responsible for damages or losses caused directly or indirectly.

Our guarantee is applicable for twelve (12) months after the date at which the equipment is made available. The repair, modification or replacement of a part during the guarantee period will not result in this guarantee being extended.

10. REPAIR

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

11. ACCESSORIES

- ADP-110V or ADP-220V: AC Adapter.
- BP-250: BNC Plug to BNC Plug; $50\ \Omega$ Resistance, RG58C UL, Length 100cm.
- BP-276N: Alligator Clip, UL 1000V CAT II, 10A.
(Red x 1pc , Black x 1pc)
- BP-266: HV IC Clip, MAX. 6500V(DC+ACp-p).
(Red x 1pc , Black x 1pc)
- BP-366: HV Banana Plug to Banana Plug Silicon Wire, 18AWG, UL 20KV, Length 60cm.(Red x 1pc , Black x 1pc)
- Instruction Manual(TINSE0004S4).

DP-100

High Voltage Differential Probe

DP-100 HIGH VOLTAGE DIFFERENTIAL PROBE

1. FEATURES

- The DP-100 differential probe provides a safety means for measuring differential voltage to all models of oscilloscopes.
- The DP-100 converts the high differential voltage ($\leq 7000V_{\text{peak}}$) into a low voltage ($\leq 7.0V$, with reference to the earth) and display on the oscilloscopes.
- The DP-100 is designed to operate with the $1M\Omega$ impedance oscilloscopes. When combine with the 50Ω load, the attenuation will be 2 times.
- We recommend to use PINTEK PL-10 with DP-100 to expand the measuring with DMM to observe more accurate measurement. The accuracy of oscilloscope is 3% and the DMM is less than 1%.

NOTE: If you connect DP-100 to the DMM without PL-10, the accuracy will be higher than 10%.

2. SPECIFICATIONS

(1) Bandwidth:

DC - to 100 MHz (-3 dB) for x 200, x 500 and x 1000

DC - to 50 MHz (for attenuation x 100)

(2) Attenuation: x 100, x 200, x 500, x1000

(3) Accuracy: +/- 2%

(4) Voltage Input Ranges (DC + AC peak to peak)

$\leq 700 V_{\text{p-p}}$ for x 100, (i.e about 230 Vrms or DC)

$\leq 1400 V_{\text{p-p}}$ for x 200, (i.e about 460 Vrms or DC)

$\leq 3500 V_{\text{p-p}}$ for x 500, (i.e about 1140 Vrms or DC)

$\leq 7000 V_{\text{p-p}}$ for x 1000, (i.e about 2300 Vrms or DC)

(5) Permitted Max Input Voltage

Max differential voltage: 7000 V (DC + AC peak to peak)

Max voltage between each input terminal and ground:

6500 Vrms

(6) Input Impedance:

Differential: $54\text{ M}\Omega / 1.2\text{ pF}$

Between terminals and ground: $27\text{ M}\Omega / 2.3\text{ pF}$

(7) Output: $\leq \pm 7.0\text{ V}$

(8) Output Impedance: $50\ \Omega$

(9) Rise Time: 3.5 ns for x 200, x 500, and x 1000; 7 ns for x 100

(10) Rejection Rate on Common Mode:

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

(11) Power Supply: Only External 9 V DC power supply .

(12) Consumption: 35 mA max (0.4 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:

240 x 80 x 30 mm; 280g

(2) Electrical Safety to IEC 1010-1

- Dual Insulation
- Installation Category III
- Degree of Pollution 2
- Rated Voltage or Max Line-Earth: 6500 Vrms

(3) CE Mark

Conforms to EN 50081-1 and 50082-1 standards

(4) Indoor use only.

5. OPERATING PROCEDURE

- Connect the leads to the input and place the wire-grip on the circuit to be tested.
- 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.

The conversion table gives the real vertical deviation.

Attenuation	X 1000	X 500	X 200	X 100
Voltage Input Range (DC+AC Peak)	7000Vp-p (±3500VDC)	3500Vp-p (±1750VDC)	1400Vp-p (±700VDC)	700Vp-p (±350VDC)

Vertical Deviation on the Oscilloscope in V/div	Real Deviation In V/div			
	x 1000	x 500	x 200	x 100
1	1000	500	200	100
0.5	500	250	100	50
0.2	200	100	40	20
0.1	100	50	2	10
50 m	50	25	10	5
20 m	20	10	4	2
10 m	10	5	2	1
5 m	5	2.5	1	0.5
2 m	2	1	0.4	0.2

[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 x 200, the oscilloscope on 0.5 V/div, the real vertical deviation is $200 \times 0.5 = 100$ V/div.

With a 50Ω load on the input of the oscilloscope the deviation becomes 200 V/div.

6. 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.

7. CLEANING

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

8. STORAGE

If the probe is not use more than 60 days, please store the probe in a dehumidified environment to keep dry.

9. 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.

It is applicable for normal use of our instruments, and does not apply to damage or destruction caused, notably by error in mounting, mechanical accident, faulty maintenance, defective use, overload or exceed voltage.

Our responsibility being strictly limited to the pure and simple replacement of the faculty parts of our equipment, the buyer expressly renounces any attempt to find us responsible for damages or losses caused directly or indirectly.

Our guarantee is applicable for twelve (12) months after the date at which the equipment is made available. The repair, modification or replacement of a part during the guarantee period will not result in this guarantee being extended.

10. REPAIR

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

11. ACCESSORIES

- ADP-110V or ADP-220V: AC Adapter.
- BP-250: BNC Plug to BNC Plug; $50\ \Omega$ Resistance, RG58C UL, Length 100cm.
- BP-276N: Alligator Clip, UL 1000V CAT II, 10A.
(Red x 1pc , Black x 1pc)
- BP-286: Test Lead UL 1000V, CAT III.(Red x 1pc , Black x 1pc)
- BP-266: HV IC Clip, MAX. 6500V(DC+ACp-p).
(Red x 1pc , Black x 1pc)
- BP-366: HV Banana Plug to Banana Plug Silicon Wire, 18AWG, UL 20KV, Length 60cm.(Red x 1pc , Black x 1pc)
- Carry Case(PX-502).
- Instruction Manual(TINSE0004S4).

DP-14K

High Voltage Differential Probe

DP-14K HIGH VOLTAGE DIFFERENTIAL PROBE

1. FEATURES

- The DP-14K differential probe provides a safety means for measuring differential voltage to all models of oscilloscopes.
- The DP-14K converts the high differential voltage ($\leq 14\text{KV}_{\text{peak}}$) into a low voltage ($\leq 7.0\text{V}$, with reference to the earth) and display on the oscilloscopes. Its $75\text{MHz}/14\text{KV}_{\text{peak}}$ is very suitable for high frequency users and high voltage testing conditions R+D people and repairs.

- The DP-14K is designed to operate with the $1\text{M}\Omega$ impedance oscilloscopes. When combine with the 50Ω load, the attenuation will be 2 times.

We recommend to use PINTEK PL-10 with DP-14K to expand the measuring with DMM to observe more accurate measurement. The accuracy of oscilloscope is 3% and the DMM is less than 1%.

NOTE: If you connect DP-14K to the DMM without PL-10, the accuracy will be higher than 10%.

2. SPECIFICATIONS

(1) Bandwidth:

DC - to 75 MHz (-3 dB)

DC - to 35 MHz (for attenuation x 200)

(2) Attenuation: x 100, x 400, x 1000, x 2000

(3) Accuracy: +/- 2%

(4) Voltage Input Ranges (DC + AC peak to peak)

$\leq 1400\text{ Vp-p}$ for x 200, (i.e about 460 Vrms or DC)

$\leq 2800\text{ Vp-p}$ for x 400, (i.e about 920 Vrms or DC)

$\leq 7000\text{ Vp-p}$ for x 1000, (i.e about 2320 Vrms or DC)

$\leq 14000\text{ Vp-p}$ for x 2000, (i.e about 4950 Vrms or DC)

(5) Permitted Max Input Voltage

Max differential voltage: 14KV (DC + AC peak to peak)

Max voltage between each input terminal and ground:

(6) Input Impedance:

Differential: $54\text{ M}\Omega / 1.2\text{ pF}$

Between terminals and ground: $27\text{ M}\Omega / 2.3\text{ pF}$

(7) Output: $\leq \pm 7.0\text{ V}$

(8) Output Impedance: $50\ \Omega$

(9) Rise Time: 4.7 ns for x 400, x 1000, and x 2000; 10 ns for x 200

(10) Rejection Rate on Common Mode:

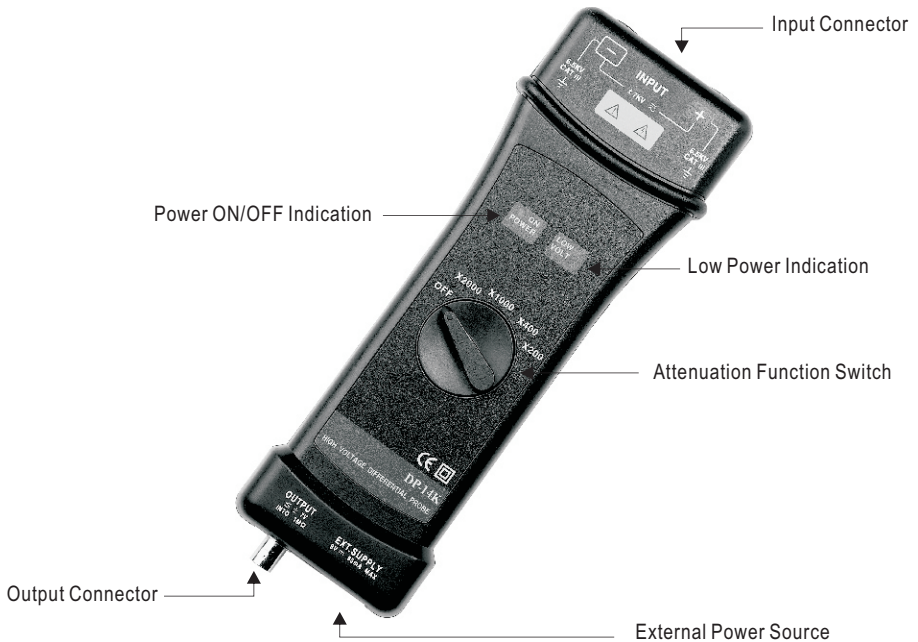
$60\text{ Hz}: > 80\text{ dB}$; $100\text{ Hz}: > 60\text{ dB}$; $1\text{ MHz}: > 50\text{ dB}$

(11) Power Supply:

Only External 9 V DC power supply .

(12) Consumption: 35 mA max (0.4 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:

240 x 80 x 30 mm; 280g

(2) Electrical Safety to IEC 1010-1

- Dual Insulation
- Installation Category III
- Degree of Pollution 2
- Rated Voltage or Max Line-Earth: 6.5 KVrms

(3) CE Mark

Conforms to EN 50081-1 and 50082-1 standards

(4) Indoor use only.

5. OPERATING PROCEDURE

- Connect the leads to the input and place the wire-grip on the circuit to be tested.
- 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.

The conversion table gives the real vertical deviation.

Attenuation	X 2000	X 1000	X 400	X 200
Voltage Input Range (DC+AC Peak)	14000Vp-p (±7000VDC)	7000Vp-p (±3500VDC)	2800Vp-p (±1400VDC)	1400Vp-p (±700VDC)

Vertical Deviation on the Oscilloscope in V/div	Real Deviation In V/div			
	x 2000	x 1000	x 400	x 200
1	2000	1000	400	200
0.5	100	500	200	10
0.2	400	200	80	40
0.1	200	100	40	20
50 m	100	50	20	10
20 m	40	20	8	4
10 m	20	10	4	2
5 m	10	5	2	1
2 m	4	2	0.8	0.4

[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 x 200, the oscilloscope on 0.5 V/div, the real vertical deviation is $200 \times 0.5 = 100$ V/div.

With a 50Ω load on the input of the oscilloscope the deviation becomes 200 V/div.

6. 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.

7. CLEANING

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

8. STORAGE

If the probe is not use more than 60 days, please store the probe in a dehumidified environment to keep dry.

9. 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.

It is applicable for normal use of our instruments, and does not apply to damage or destruction caused, notably by error in mounting, mechanical accident, faulty maintenance, defective use, overload or exceed voltage.

Our responsibility being strictly limited to the pure and simple replacement of the faculty parts of our equipment, the buyer expressly renounces any attempt to find us responsible for damages or losses caused directly or indirectly.

Our guarantee is applicable for twelve (12) months after the date at which the equipment is made available. The repair, modification or replacement of a part during the guarantee period will not result in this guarantee being extended.

10. REPAIR

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

11. ACCESSORIES

- ADP-110V or ADP-220V: AC Adapter.
- BP-250: BNC Plug to BNC Plug; $50\ \Omega$ Resistance, RG58C UL, Length 100cm.
- BP-276N: Alligator Clip, UL 1000V CAT II, 10A.
(Red x 1pc , Black x 1pc)
- BP-286: Test Lead UL 1000V, CAT III.(Red x 1pc , Black x 1pc)
- BP-266: HV IC Clip, MAX. 6500V(DC+ACp-p).
(Red x 1pc , Black x 1pc)
- BP-366: HV Banana Plug to Banana Plug Silicon Wire, 18AWG, UL 20KV, Length 60cm.(Red x 1pc , Black x 1pc)
- Carry Case(PX-502).
- Instruction Manual(TINSE0004S4).

DP-20K

High Voltage Differential Probe

DP-20K HIGH VOLTAGE DIFFERENTIAL PROBE

1. FEATURES

- The DP-20K differential probe provides a safety means for measuring differential voltage to all models of oscilloscopes.
- The DP-20K converts the high differential voltage ($\leq 20\text{KVpeak}$) into a low voltage ($\leq 7.0\text{V}$, with reference to the earth) and display on the oscilloscopes. Its $20\text{MHz}/20\text{KVpeak}$ is very suitable for high frequency users and high voltage testing conditions R+D
- people and repairs.

- The DP-20K is designed to operate with the $1\text{M}\Omega$ impedance oscilloscopes. When combine with the 50Ω load, the attenuation
- will be 2 times.

We recommend to use PINTEK PL-10 with DP-20K to expand the measuring with DMM to observe more accurate measurement. The accuracy of oscilloscope is 3% and the DMM is less than 1%.

NOTE: If you connect DP-20K to the DMM without PL-10, the accuracy will be higher than 10%.

2. SPECIFICATIONS

(1) Bandwidth:

DC - to 20 MHz (-3 dB)

DC - to 10 MHz (for attenuation x 300)

(2) Attenuation: x 300, x 600, x 1500, x 3000

(3) Accuracy: +/- 2%

(4) Voltage Input Ranges (DC + AC peak to peak)

$\leq 2000\text{ V}$ for x 300, (i.e about 700 Vrms or DC)

$\leq 4000\text{ V}$ for x 600, (i.e about 1400 Vrms or DC)

$\leq 10000\text{ V}$ for x 1500, (i.e about 3400 Vrms or DC)

$\leq 20000\text{ V}$ for x 3000, (i.e about 7000 Vrms or DC)

(5) Permitted Max Input Voltage

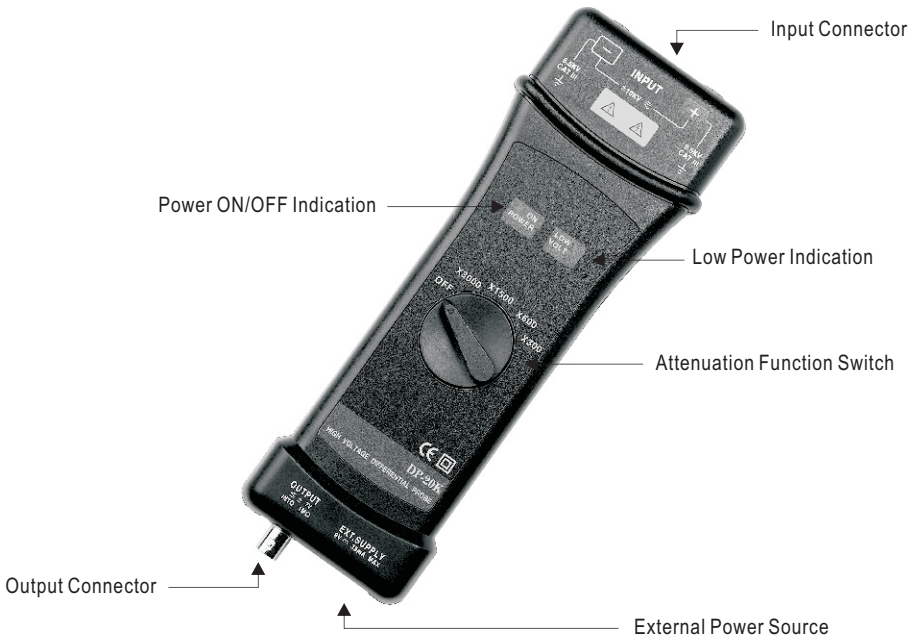
Max differential voltage: 20KV (DC + AC peak to peak)

Max voltage between each input terminal and ground:

6500 Vrms

- (6) Input Impedance:
 Differential: $118\text{ M}\Omega / 1.2\text{ pF}$
 Between terminals and ground: $59\text{ M}\Omega / 2.3\text{ pF}$
- (7) Output: $\leq \pm 7.0\text{ V}$
- (8) Output Impedance: $50\ \Omega$
- (9) Rise Time: 17.5 ns for x 600, x 1500, and x 3000;
 35 ns for x 300
- (10) Rejection Rate on Common Mode:
 $60\text{ Hz} > 80\text{ dB}$; $100\text{ Hz} > 60\text{ dB}$; $1\text{ MHz} > 50\text{ dB}$
- (11) Power Supply:
 Only External 9 V DC power supply .
- (12) Consumption: $35\text{ mA max (0.4 WATT)}$

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:

240 x 80 x 30 mm; 280g

(2) Electrical Safety to IEC 1010-1

- Dual Insulation
- Installation Category III
- Degree of Pollution 2
- Rated Voltage or Max Line-Earth: 6.5 KVrms

(3) CE Mark

Conforms to EN 50081-1 and 50082-1 standards

(4) Indoor use only.

5. OPERATING PROCEDURE

- Connect the leads to the input and place the wire-grip on the circuit to be tested.
- 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.

The conversion table gives the real vertical deviation.

Attenuation	X 3000	X 1500	X 600	X 300
Voltage Input Range (DC+AC Peak)	20KVp-p (±10KVDC)	10KVp-p (±5KVDC)	4KVp-p (±2KVDC)	2KVp-p (±1KVDC)

Vertical Deviation on the Oscilloscope in V/div	Real Deviation In V/div			
	x 3000	x 1500	x 600	x 300
1	3000	1500	600	300
0.5	1500	750	300	150
0.2	600	300	120	60
0.1	300	150	60	30
50 m	150	75	30	15
20 m	60	30	12	6
10 m	30	15	6	3
5 m	15	7.5	3	1.5
2 m	6	3	1.2	0.6

[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 x 200, the oscilloscope on 0.5 V/div, the real vertical deviation is $200 \times 0.5 = 100$ V/div.

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- BP-266: HV IC Clip, MAX. 6500V(DC+ACp-p).
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- Carry Case(PX-502).
- Instruction Manual(TINSE0004S4).