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**BK PRECISION®**



*Passive Oscilloscope Probes  
Instruction Manual*

PR150B

PR250B

PR500B

PR2000B

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*For product information, sales, service and technical support:*

- Call +1-714-921-9095 or visit [www.bkprecision.com](http://www.bkprecision.com)



*This electronic product is subject to disposal and recycling regulations that vary by country and region. Many countries prohibit the disposal of waste electronics equipment in standard waste receptacles.*

*Made in Taiwan*

## **Warranty**

*B&K Precision warrants its probes for normal use and operation within specification for a period of one (1) year from the date of shipment (accessories and manual not included).*

*In exercising its warranty, B&K Precision, at its option, will either repair or replace any assembly returned within the warranty period. However, this will be done only if the product is determined by B&K Precision's examination to be defective because of workmanship or materials, and the defect is not caused by misuse, neglect, accident, abnormal conditions of operation, or damaged by attempted repair or modifications by non-authorized facility.*

*The customer will be responsible for the transportation and insurance charges for the return of products.*

*This warranty replaces all other warranties, expressed or implied, including, but not limited to, any implied warranty of merchantability, fitness, or adequacy for any particular purpose or use. B&K Precision shall not be liable for any special, incidental or consequential damages, whether in contract or otherwise.*

## General Safety Information

*To avoid personal injury and to prevent fire or damage to the probe or any product connected to it, review and comply with the following safety precautions.*

*Use of this probe or test instrument it is connected to in a manner not specified by the manufacturers may impair protection mechanisms.*

### **To avoid Personal Injury and Product Damage:**

**Connect to properly grounded instruments.** *Use only with test instruments having their BNC input connected to earth ground. Do not connect the probe ground terminal to any point which is at a potential other than earth ground.*

**Do not disconnect the probe from instrument during measurement.** *Connect the probe to the measurement instrument before connecting the probe to the test circuit.*

**Do not apply to the input any potential that exceeds the maximum rating of the probe.**

**Comply with the voltage derating curve.** *When measuring higher frequency signals, be sure to comply with the Voltage vs Frequency Derating Curve.*

**Do not remove probe casing.** *Removal of the probe's casing may expose you to electric shock.*

**Do not use if any part is damaged.** *All maintenance should be referred to a qualified service personnel only.*

**Do not use in wet or explosive atmospheres.**

**For indoor use only.**

## Symbols and Terms

*These terms may appear in this manual:*



**WARNING** Warning statements identify conditions or practices that could result in injury or loss of life.



**CAUTION** Caution statements identify conditions or practices that could result in damage to this product or other property.

*The following symbols may appear on the product:*



**DANGER** High voltage



**ATTENTION** Refer to manual



**DOUBLE INSULATION**



**PROTECTIVE (EARTH) TERMINAL**

## EC Declaration of Conformity

<b>EN 61010-031:2000</b> Type C probe assembly	Low Voltage Directive (LVD) 93/68/EEC (and 73/23/EEC)	<b>CE</b>
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## Basic Operation

The B&K Slimline Probes are passive high impedance voltage oscilloscope probes designed and calibrated for use with general purpose oscilloscopes having an input impedance of  $1\text{ M}\Omega$  shunted by  $13\text{ pF}$ , however selected models may be compensated for use with instruments having an input capacitance between  $10$  to  $30\text{ pF}$ .



**WARNING.** To avoid electric shock, keep fingers behind the probe's finger guard during use.

## Probe Compensation

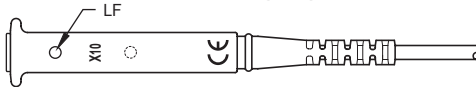
Proper compensation of the probe is required to assure amplitude accuracy of the waveform being measured by matching the probe to the oscilloscope's input capacitance. Compensation should be adjusted whenever the probe is connected to or transferred between oscilloscopes.

### Procedure:

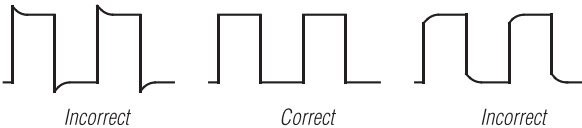
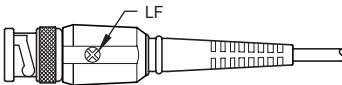
Low Frequency (LF):

- Apply a  $1\text{ kHz}$  square wave to the probe or connect to the oscilloscope's calibrator output.
- Adjust the trimmer located as shown for a flat topped square wave per center illustration.

PR150B & PR250B (Near finger guard)



PR500B & PR2000B (BNC Box)

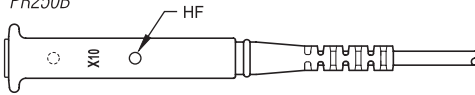


*High frequency (HF):*

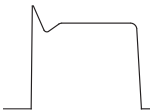
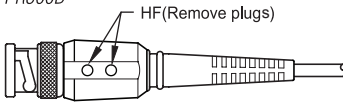
*(Should seldom require adjustment, however, if adjustment is required)*

- *Apply a 1 MHz square wave to the probe (<0.7 ns rise-time).*
- *Adjust trimmers located as shown for a flat topped square wave per center illustration.*

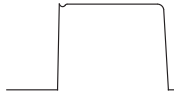
*PR250B*



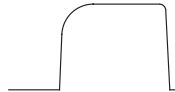
*PR500B*



*Incorrect*



*Correct*



*Incorrect*



## Model Number & Specifications

Model	Attn.	Input Impedance		B/W (MHz)	Rise Time (ns)	Length (m)	Compensation Range (pF)
		R (MΩ)	C (pF)				
<b>PR150B</b>	x1/x10	1/10	45/12	17/150	20/2.3	1.2	10 - 30
<b>PR250B</b>	x10	10	12	250	1.4	1.2	10 - 30
<b>PR500B</b>	x10	10	10	500	0.7	1.2	6 - 22
<b>PR2000B</b>	x100	100	5	200	1.8	1.2	10 - 30

Max. Input Voltage:

PR150B, 250B & 500B . . . . .600 V CAT I, 300 V CAT II (DC + peak AC)

PR2000B . . . . .2000 V CAT I (DC + peak AC)

. . . . .Derated with Frequency (see Derating Curve)

. . . . .Pollution Degree 2

Max. Operating Temp . . . . .0° to +50° C

Humidity . . . . .85% RH or less (at 35° C)



**WARNING.** Do not apply to the input any potential that exceeds the maximum ratings of the probe .

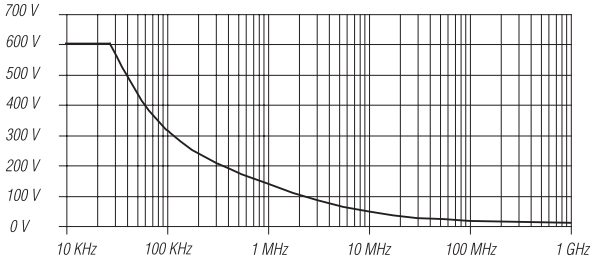
Definitions:

Measurement Category I (CAT I) is for measurements performed on circuits not directly connected to mains.

Measurement Category II (CAT II) is for measurements performed on circuits directly connected to the low voltage installation. Examples are on household appliances, portable tools and similar equipment.

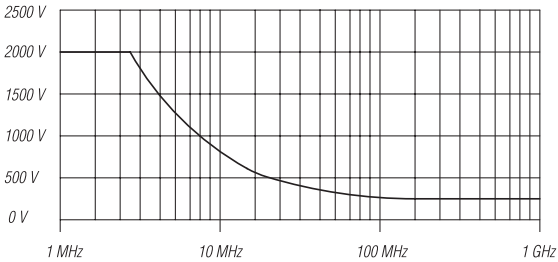
Pollution Degree 2 refers to an operation environment where normally only dry non-conductive pollution occurs. Temporary conductivity caused by condensation must be expected.

### *Voltage vs Frequency Derating Curve*



*Models: PR150B, PR250 & PR500B*

### *Voltage vs Frequency Derating Curve*



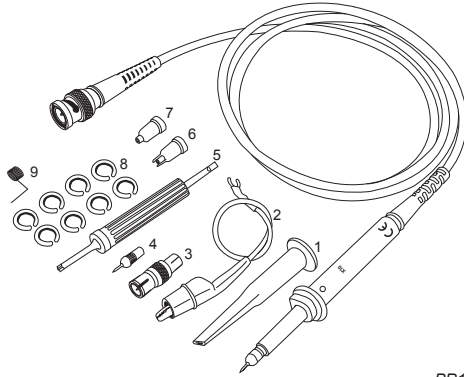
*Model: PR2000B*

## *Cleaning*

*Use the following guidelines:*

- *Clean only the exterior of the probe, cables and accessories. Use a soft cotton cloth moistened with a mild detergent and water solution. Do not allow any portion of the probe to be submerged at any time.*
- *Dry the probe and accessory thoroughly before attempting to make any voltage measurement.*
- *Do not subject the probe to solvents or solvent fumes as these can cause deterioration of the probe body, cables and accessories.*

## Replaceable Parts



PR150B

<i>Item</i>	<i>Description</i>	<i>Quantity</i>
1	<i>Sprung Hook, 5 mm, Black</i>	1
2	<i>GND Lead w/Alligator Clip</i>	1
3	<i>BNC Adapter, 5 mm</i>	1
4	<i>Replacement Tip, Black</i>	1
5	<i>Deluxe Trimmer Tool</i>	1
6	<i>IC Tip Insulator, 5 mm, Black</i>	1
7	<i>Tip Insulator, 5 mm, Black</i>	1
8	<i>Identifier Rings</i>	1
9	<i>Probe Tip GND</i>	1

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