

# High-voltage Differential Probes

## P5200A • P5202A • P5205A • P5210A Data Sheet



### Features & Benefits

- Bandwidths up to 100 MHz
- Up to 5,600 V Differential (DC + pk AC)
- Up to 2,300 V Common (RMS)
- Overrange Indicator
- Safety Certified
- Switchable Attenuation
- Switchable Bandwidth Limit

### Applications

- Floating Measurements
- Switching Power Supply Design
- Motor Drive Design
- Electronic Ballast Design
- CRT Display Design
- Power Converter Design and Service
- Power Device Evaluation

The P5200A can be used with any oscilloscope and enables users to **safely** make measurements of floating circuits with their oscilloscope grounded. The P5200A Active Differential Probe converts floating signals to low-voltage ground-referenced signals that can be displayed safely and easily on any ground-referenced oscilloscope.

**WARNING:** For safe operation, do not use the P5200A High-voltage Differential Probe with oscilloscopes that have floating inputs (isolated inputs), such as the Tektronix TPS2000 Series oscilloscopes. The P5200A High-voltage Differential Probe requires an oscilloscope or other measurement instrument with grounded inputs.

The P5210A is a Differential Probe that is capable of measuring floating voltages up to 5,600 V safely and has a bandwidth up to 50 MHz. It is supplied with two sizes of hook tips and has an overrange visual and audible indicator which warns the user when they are exceeding the linear range of the probe. It can be used with Tektronix TEKPROBE™ interface oscilloscopes directly or with any oscilloscope with the use of the 1103 TEKPROBE® Power Supply.

The P5205A is a 100 MHz Active Differential Probe capable of measuring fast rise times of signals in floating circuits. This 1,300 V differential probe can safely measure voltages in IGBT circuits such as motor drives or power converters. It is specifically designed to operate on Tektronix oscilloscopes with TEKPROBE® interface. The P5202A is similar to the P5205A, but this probe has approximately half the attenuation and half the dynamic range of the P5205A and better signal-to-noise ratio.

## Characteristics

Characteristic	P5200A	P5202A	P5205A	P5210A
Attenuation	50X / 500X	20X / 200X	50X / 500X	100X / 1000X
Differential Input Voltage	500X: $\pm 1300$ V 50X: $\pm 130$ V	200X: $\pm 640$ V 20X: $\pm 64$ V	500X: $\pm 1300$ V 50X: $\pm 130$ V	1000X: $\pm 5600$ V 100X: $\pm 560$ V
Common Mode Voltage	500X: $\pm 1300$ V 50X: $\pm 130$ V	200X: $\pm 640$ V 20X: $\pm 64$ V	500X: $\pm 1300$ V 50X: $\pm 130$ V	1000X: $\pm 5600$ V 100X: $\pm 560$ V
Maximum Rated Input Voltage (each side rated to ground)	1000 V CAT II	450 V 350 V CAT II	1000 V CAT II	2300 V 1000 V CAT III
Bandwidth	50 MHz	100 MHz	100 MHz	50 MHz
Differential Input Impedance	10 M $\Omega$ , 2 pF	5 M $\Omega$ , 2 pF	10 M $\Omega$ , 2 pF	40 M $\Omega$ , 2.5 pF
Input Impedance between each Input and Ground	5 M $\Omega$ , 4 pF	2.5 M $\Omega$ , 4 pF	5 M $\Omega$ , 4 pF	20 M $\Omega$ , 5 pF
Cable Length	1.8 m			
Typical CMRR	DC: >80 dB 100 kHz: >60 dB 3.2 MHz: >30 dB 50 MHz: >26 dB		DC: >80 dB 100 kHz: >60 dB 3.2 MHz: >40 dB 50 MHz: >30 dB	

## Ordering Information

### P5200A

Active Differential Probe.

**Includes:** 2 hook clips, 2 alligator clips, 2 pincer clips, 2 extension cables.

**Note:** Please specify power cord option when ordering.

### Power Plug Options (P5200A only)

Option	Description
Opt. A0	US power
Opt. A1	Euro power
Opt. A2	UK power
Opt. A3	Australian power
Opt. A5	Switzerland power
Opt. A6	Japanese power
Opt. A10	China power
Opt. A11	India power
Opt. A12	Brazil power

### P5202A

Active Differential Probe.

**Includes:** 2 hook clips, 2 alligator clips, 2 pincer clips, 2 extension cables.

### P5205A

Active Differential Probe.

**Includes:** 2 hook clips, 2 alligator clips, 2 pincer clips, 2 extension cables.

### P5210A

Active Differential Probe.

**Includes:** 2 probe tips, 2 large hook clips; 2 small hook clips; 2 probe heads.

### Service Options

Option	Description
Opt. C3	Calibration Service 3 Years
Opt. C5	Calibration Service 5 Years
Opt. D1	Calibration Data Report
Opt. D3	Calibration Data Report 3 Years (with Opt. C3)
Opt. D5	Calibration Data Report 5 Years (with Opt. C5)
Opt. R3	Repair Service 3 Years
Opt. R5	Repair Service 5 Years



196-3523-00: Extender Leads (1.5 m).



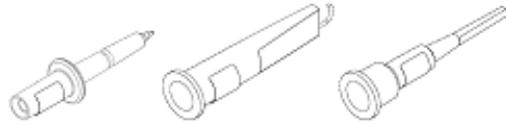
AC280-FL: Hook Clips.



AC283-FL: Pincer Clips.



AC285-FL: Alligator Clips.



020-3070-00: Hook Clip Kit.

**Probe and Accessory Derating Table (Common Mode, relative to ground, when used with P52xxA Series probes)**

Accessory	Description	P5202A	P5200A/P5205A	P5210A
		450 V CAT I 300 V CAT II	1000 V CAT II 600 V CAT III	2300 V CAT I 1000 V CAT III
196-3523-00	2x Extender Leads (1.5 m)	Standard	Standard	Standard
	2300 V CAT I 1000 V CAT III	450 V CAT I 300 V CAT II	1000 V CAT II 600 V CAT III	2300 V CAT I 1000 V CAT III
AC280-FL	2x Hook Clips	Standard	Standard	Optional
	1000 V CAT III 600 V CAT IV	450 V CAT I 300 V CAT II	1000 V CAT II 600 V CAT III	1000 V CAT I 1000 V CAT III
AC283-FL	2x Pincer Clips	Standard	Standard	Optional
	1000 V CAT III 600 V CAT IV	450 V CAT I 300 V CAT II	1000 V CAT II 600 V CAT III	1000 V CAT I 1000 V CAT III
AC285-FL	2x Alligator Clips	Standard	Standard	Optional
	1000 V CAT III 600 V CAT IV	450 V CAT I 300 V CAT II	1000 V CAT II 600 V CAT III	1000 V CAT I 1000 V CAT III
020-3070-00	Hook Clip Kit	Optional	Optional	Standard
	2300 V CAT I 1000 V CAT II	450 V CAT I 300 V CAT II	1000 V CAT II 600 V CAT II	2300 V CAT I 1000 V CAT II



Product(s) are manufactured in ISO registered facilities.

**Contact Tektronix:**

- ASEAN / Australasia** (65) 6356 3900
- Austria** 00800 2255 4835\*
- Balkans, Israel, South Africa and other ISE Countries** +41 52 675 3777
- Belgium** 00800 2255 4835\*
- Brazil** +55 (11) 3759 7627
- Canada** 1 800 833 9200
- Central East Europe and the Baltics** +41 52 675 3777
- Central Europe & Greece** +41 52 675 3777
- Denmark** +45 80 88 1401
- Finland** +41 52 675 3777
- France** 00800 2255 4835\*
- Germany** 00800 2255 4835\*
- Hong Kong** 400 820 5835
- India** 000 800 650 1835
- Italy** 00800 2255 4835\*
- Japan** 81 (3) 6714 3010
- Luxembourg** +41 52 675 3777
- Mexico, Central/South America & Caribbean** 52 (55) 56 04 50 90
- Middle East, Asia, and North Africa** +41 52 675 3777
- The Netherlands** 00800 2255 4835\*
- Norway** 800 16098
- People's Republic of China** 400 820 5835
- Poland** +41 52 675 3777
- Portugal** 80 08 12370
- Republic of Korea** 001 800 8255 2835
- Russia & CIS** +7 (495) 7484900
- South Africa** +41 52 675 3777
- Spain** 00800 2255 4835\*
- Sweden** 00800 2255 4835\*
- Switzerland** 00800 2255 4835\*
- Taiwan** 886 (2) 2722 9622
- United Kingdom & Ireland** 00800 2255 4835\*
- USA** 1 800 833 9200

\* European toll-free number. If not accessible, call: +41 52 675 3777

Updated 10 February 2011

**For Further Information.** Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit [www.tektronix.com](http://www.tektronix.com)



Copyright © Tektronix, Inc. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX and TEK are registered trademarks of Tektronix, Inc. All other trade names referenced are the service marks, trademarks, or registered trademarks of their respective companies.

05 May 2011

51W-11195-4

[www.tektronix.com](http://www.tektronix.com)

