High-voltage Differential Probes

TMDP0200 - THDP0200 - THDP0100 - P5200A - P5202A - P5205A - P5210A

Tektronix offers a broad portfolio of high-voltage probing solutions that enable users to safely and accurately make floating measurements.

Key performance specifications

- Bandwidths up to 200 MHz
- Up to 6000 V differential (DC + pk AC)
- Up to 2300 V common (RMS)

Key features

- 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

- BNC interface (P5200A probes)
- TekVPI® interface (TMDP and THDP Series probes)
- TekProbe® interface (P5202A, P5205A, and P5210A Series probes)

Safe high-voltage probe solutions

The THDP0100 and P5210A have the largest differential dynamic range capability from Tektronix, allowing users to safely measure up to ±6000 V. The THDP0100 supports bandwidths up to 100 MHz and slew rates up to 2500 V/ns at 1/1000 gain. These probes are supplied with two sizes of hook tips and have an overrange visual and audible indicator which warns the user when they are exceeding the linear range of the probe.

The THDP0200 and P5205A are active differential probes that are capable of safely measuring differential voltages up to ±1500 V. The probes are effective in making measurements in IGBT circuits such as motor drives and power converters. The THDP0200 supports bandwidths up to 200 MHz and slew rates up to 275 V/ns at 1/250 gain.

The TMDP0200 and P5202A are designed for medium-voltage applications with differential requirements up to ±750 V. These probes have lower attenuation ranges and offer better signal-to-noise ratio.

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.

Tektronix®

Connectivity options

The TMDP and THDP Series probes are equipped with the TekVPI® interface which allows smart communication between the oscilloscope and probe. Pushing the probe menu button will launch the probe control menu on the oscilloscope display providing access to all relevant probe settings and controls. These probes are designed to operate on TekVPI® oscilloscopes without requiring the TPA-BNC adapter.

The P52xxA Series probes are equipped with the Tektronix TekProbe® interface which communicates scale information to the oscilloscope. Direct connections can be made to oscilloscopes configured with the TekProbe® interface or to any oscilloscope when used with the 1103 TekProbe® Power Supply.

Specifications

All specifications apply to all models unless noted otherwise.

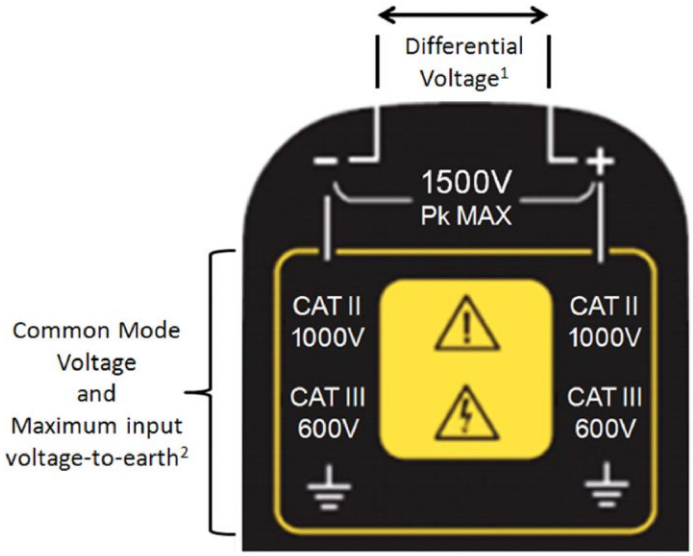
Model overview

Probes with the TekVPI® interface

	TMDP0200	THDP0200	THDP0100
Attenuation	25X / 250X	50X / 500X	100X / 1000X
Differential Voltage	250X: ±750 V 25X: ±75 V	500X: ±1500 V 50X: ±150 V	1000X: ±6000 V 100X: ±600 V
Common Mode Voltage	±750 V	±1500 V	±6000 V
Maximum Input Voltage-to-Earth	550 V CAT I 300 V CAT III	1000 V CAT II 600 V CAT III	2300 V CAT I 1000 V CAT III
Bandwidth	200 MHz	200 MHz	100 MHz
Rise Time	<1.8 ns	<1.8 ns	<3.5 ns
Slew Rate	<275 V/ns at 1/250 gain	<650 V/ns at 1/500 gain	<2500 V/ns at 1/1000 gain
Input Impedance at the Probe Tip	5 MΩ || <2 pF	10 MΩ || <2 pF	40 MΩ || <2.5 pF
Typical CMRR	DC: > -80 dB 100 kHz: > -60 dB 3.2 MHz: > -30 dB 100 MHz: > -26 dB	DC: > -80 dB 100 kHz: > -60 dB 3.2 MHz: > -30 dB 100 MHz: > -26 dB	DC: > -80 dB 100 kHz: > -60 dB 3.2 MHz: > -30 dB 100 MHz: > -26 dB
Cable Length	1.5 m	1.5 m	1.5 m

Probes with the BNC and TekProbe® interface

	P5200A	P5202A	P5205A	P5210A
Attenuation	50X / 500X	20X / 200X	50X / 500X	100X / 1000X
Differential Voltage	500X: ±1300 V 50X: ±130 V	200X: ±640 V 20X: ±64 V	500X: ±1300 V 50X: ±130 V	1000X: ±5600 V 100X: ±560 V
Common Mode Voltage	±1300 V	±640 V	±1300 V	±5600 V
Maximum Input Voltage-to-Earth	1000 V CAT II	450 V CAT I 300 V CAT II	1000 V CAT II	2300 V CAT I 1000 V CAT III
Bandwidth	50 MHz	100 MHz	100 MHz	50 MHz
Differential Input Impedance	10 MΩ || 2 pF	5 MΩ || 2 pF	10 MΩ || 2 pF	40 MΩ || 2.5 pF
Input Impedance between each Input and Ground	5 MΩ || 4 pF	2.5 MΩ || 4 pF	5 MΩ || 4 pF	20 MΩ || 5 pF
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		
Cable length	1.8 m			



THDP0200 Probe Label

1. The differential voltageis the maximum measurable range between the (+) and (-) input leads of the probe. Beyond these limits, the output could be clipped.

2. The maximum common mode voltage and maximum input voltage-to-earth (RMS) are the maximum voltages that each input lead (+/-) can be from ground.

Ordering information

Standard accessories

P5200A, P5202A, and P5205A

Description	Quantity included	Reorder part number
Hook clips	1 set of red and black hook clips	AC280-FL
Pincer clips	1 set of red and black pincer clips	AC283-FL
Alligator clips	1 set of red and black alligator clips	AC285-FL
Extension cables	1 set of red and black extension cables	196-3523-00

TMDP0200 and THDP0200

Description	Quantity included	Reorder part number
Hook clips	2	AC280-FL
Pincer clips	2	AC283-FL
Alligator clips	2	AC285-FL
Extension cables	2	196-3523-00
Test leads	2	TP175-FL
High voltage differential browser	1	THV-BROWSER
Probe holder	1	TPH1000

THDP0100 and P5210A

Description	Quantity included	Reorder kit part number
Probe tips	2	020-3070-00
Large hook clips	2	
Small hook clips	2	
Probe heads	2	

Probe and Accessory Derating Table

Common mode, relative to ground, when used with P52xxA Series probes

Accessory	Description	TMDP0200 / P5202A 450 V CAT I 300 V CAT II	THDP0200 / P5200A / P5205A 1000 V CAT II 600 V CAT III	THDP0100 / P5210A 2300 V CAT I 1000 V CAT III
196-3523-00	2x Extender Leads (1.5 m) 2300 V CAT I 1000 V CAT III	Standard 450 V CAT I 300 V CAT II	Standard 1000 V CAT II 600 V CAT III	Standard 2300 V CAT I 1000 V CAT III
AC280-FL	2x Hook Clips 1000 V CAT III 600 V CAT IV	Standard 450 V CAT I 300 V CAT II	Standard 1000 V CAT II 600 V CAT III	Optional 1000 V CAT I 1000 V CAT III
AC283-FL	2x Pincer Clips 1000 V CAT III 600 V CAT IV	Standard 450 V CAT I 300 V CAT II	Standard 1000 V CAT II 600 V CAT III	Optional 1000 V CAT I 1000 V CAT III
AC285-FL	2x Alligator Clips 1000 V CAT III 600 V CAT IV	Standard 450 V CAT I 300 V CAT II	Standard 1000 V CAT II 600 V CAT III	Optional 1000 V CAT I 1000 V CAT III
020-3070-00	Hook Clip Kit 2300 V CAT I 1000 V CAT II	Optional 450 V CAT I 300 V CAT II	Optional 1000 V CAT II 600 V CAT II	Standard 2300 V CAT I 1000 V CAT II
TP175-FL	2x Test Leads 1000 V CAT III 600 V CAT IV	Standard (TMDP0200) 550 V CAT I 300 V CAT III	Standard (THDP0200) 1000 V CAT II 600 V CAT III	Optional 2300 V CAT I 1000 V CAT III

Options

Power plug options (P5200A only)

Opt. A0	North America power plug (115 V, 60 Hz)
Opt. A1	Universal Euro power plug (220 V, 50 Hz)
Opt. A2	United Kingdom power plug (240 V, 50 Hz)
Opt. A3	Australia power plug (240 V, 50 Hz)
Opt. A4	North America power plug (240 V, 50 Hz)
Opt. A5	Switzerland power plug (220 V, 50 Hz)
Opt. A6	Japan power plug (100 V, 110/120 V, 60 Hz)
Opt. A10	China power plug (50 Hz)
Opt. A11	India power plug (50 Hz)
Opt. A12	Brazil power plug (60 Hz)
Opt. A99	No power cord

Service options

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 (including warranty)
Opt. R5	Repair Service 5 Years (including warranty)
Opt. SILV200	Standard warranty extended to 5 years

Probes and accessories are not covered by the oscilloscope warranty and Service Offerings. Refer to the datasheet of each probe and accessory model for its unique warranty and calibration terms.

The P52xxA Series probes provide high-voltage differential measurement solutions for any oscilloscope.

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Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.

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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.

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