TPP0500 & TPP1000 500 MHz and 1 GHz 10X Passive Probes

Instructions

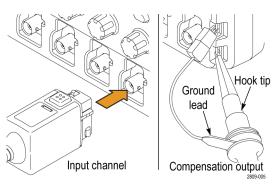




Operating Information

The TPP0500 & TPP1000 10X Passive Probes are high impedance probes with 10X attenuation that are designed for use with Tektronix DPO/MSO4000B & DPO/MSO5000 series ground-referenced oscilloscopes.

Connect the probe as shown in the illustrations below.



Compensating the Probe

You should compensate the probe after you attach it to an oscilloscope for the first time, or after you have changed the probe tip cartridge.

- 1. Connect the probe to an oscilloscope channel.
- 2. On MSO/DPO5000 instruments:
 - **a.** Connect the probe to the probe compensation output terminals on the oscilloscope front panel.
 - **b.** Select Vertical > Probe Cal....
 - c. Select the channel number tab of the channel that you connected the probe to.
 - **d.** In the Calibration section, click Calibrate Probe.

On MSO/DPO4000B instruments:

- a. Press the Channel Menu front panel button for the channel that you connected the probe to.
- **b.** Push the More button until Probe Setup is selected.
- c. Push the Calibrate Probe button and follow the on-screen instructions.

If the probe compensation fails, verify that the signal and ground connections are secure at the Probe Comp connections on the oscilloscope. Also check that the ground connection is secure at the probe head, the rigid or pogo tip is secured tightly in the probe head, and the hook tip is securely connected to the tip.

Tektronix

Standard Accessories

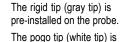


WARNING. To avoid electric shock when using the probe or accessories, keep fingers behind the finger guard of

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	On Spale	2809-010
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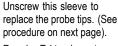
Description

Probe tips



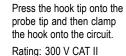
spring-loaded for compliant testing of circuit boards. Reorder part numbers: 206-0610-xx (rigid tip) 206-0611-xx (pogo tip)

Insulator sleeve



Reorder Tektronix part number 342-1194-xx

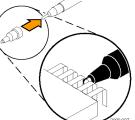
Hook tip



Reorder Tektronix part number 013-0362-xx

Micro hook tip

Use this tip to access test points in tight spaces. Press the hook tip onto the probe tip and then extend the pincers around the circuit. Rating: 300 V CAT II Reorder Tektronix part



number 013-0363-xx Universal IC cap

Use this cap to prevent shorting the probe tip between IC pins.

Press the cap on the probe tip until it snaps on, and then spin the cap to expose the probe tip toward the IC

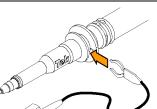
Reorder Tektronix part number 013-0366-xx

Item

Description

Ground springs

To limit aberrations on high frequency signals caused by ground path inductance. bend the spring to reach nearby ground connections (<0.75 in, long; <0.25 in, short). Reorder Tektronix part numbers: 016-2028-xx (long, 2 ea.)



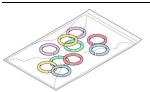
Do not use on circuits that exceed 30 V_{RMS}

Ground lead, with alligator clip

Secure the lead to the probe head ground and then to your circuit ground.

016-2034-xx (short, 2 ea.)

Reorder Tektronix part number 196-3521-xx



Color bands

Use these bands to identify the oscilloscope channel at the probe head.

Reorder Tektronix part number 016-0633-xx (5 pairs)

Optional Accessories

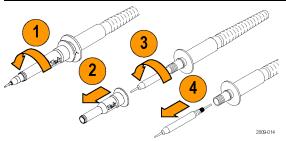
The accessories shown below are available for the probes and are rated ≤30 V unless indicated otherwise.

Accessory		Part number
MicroCKT Test Tip	Tek	206-0569-xx
BNC to Tip Adapter, Unterminated	<-	013-0367-xx
Circuit Board Test Point/PCB Adapter		016-2016-xx
Chassis-Mount Probe Test Jack	<	131-4210-xx
6" Clip-on Ground Lead		196-3198-xx
12" Alligator Ground Lead		196-3512-xx
Wire, spool, 32 AWG		020-3045-xx



Interchanging the Probe Tip

WARNING. To reduce the risk of shock, disconnect the probe before changing the probe tips.



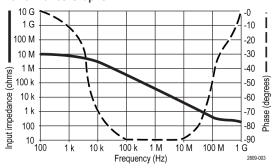
For optimal performance, do a probe compensation after the tip has been replaced.

Specifications

Table 1: Electrical and mechanical specifications

Characteristic	TPP0500	TPP1000
Bandwidth (-3 dB)	500 MHz	1 GHz
System rise time (typical)	<700 ps	<450 ps
System input capacitance	Rigid tip: 3.9 Pogo pin tip:	pF ±0.3 pF 5.1 pF ±0.5 pF
System attenuation accuracy	10:1 ±2.2%	
Probe series resistance @DC	9.75 MΩ ±0.5	5%
System input resistance @DC	10 MΩ ±2%	
Propagation delay	~5.67 ns	
Maximum input voltage	300 V _{RMS} CAT	· II
Cable length	1.3 m ±3 cm	

Performance Graphs



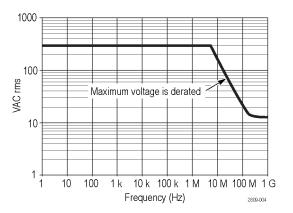


Table 2: Environmental specifications

Characteristics	Description
Temperature	
Operating Nonoperating	–15 °C to +65 °C (+5 °F to +149 °F) –62 °C to +85 °C (–80 °F to +185 °F)
Humidity	
Operating	5% to 95% relative humidity (%RH) up to +30 °C, 5% to 75% RH above +30 °C up to +65 °C. Noncondensing
Nonoperating	5% to 45% RH above +65 °C up to +85 °C. Noncondensing
Altitude	
Operating Nonoperating	3.0 km (9,842 ft) maximum 12.2 km (40,000 ft) maximum

Table 3: Certifications and compliances

Characteristics Description

	Characteristics	Description
	EC Declaration of Conformity	Compliance was demonstrated to the following specification as listed in the Official Journal of the European Communities:
		Low Voltage Directive 2006/95/EC: EN61010-031/A1: 2008
	Measurement Category Product Examples	CAT III: Distribution-level mains, fixed installation
		CAT II: Local-level mains, appliances, portable equipment
		CAT I: Circuits not directly connected to mains.

Characteristics Description

Pollution Degree 2	Do not operate in environments where conductive pollutants may be present (as defined in IEC 61010-1). Rated for indoor use only.
Additional Safety Standards	UL61010-031;2010 CAN/CSA C22.2 No. 61010-031:07/A1:2010 IEC61010-031; IEC 61010-031/A1:2008
	Equipment Recycling. This product complies with the European Union's requirements according to Directive 2002/96/EC on waste electrical and electronic equipment (WEEE). For more information about recycling options, check the Support/Service section of the Tektronix Web site (www.tektronix.com).

Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified. Using the probe or accessories in a manner not specified could result in a shock or fire hazard.

To Avoid Fire or Personal Injury

Ground-Referenced Oscilloscope Use. Do not float the reference lead of this probe when using with ground referenced oscilloscopes (for example, DPO, MSO, and TDS series oscilloscopes). The reference lead must be connected to earth potential (0 V).

Connect and Disconnect Properly. Connect the probe output to the measurement instrument before connecting the probe to the circuit under test. Disconnect the probe input and the probe reference lead from the circuit under test before disconnecting the probe from the measurement instrument.

Avoid Electric Shock. To avoid injury or loss of life, do not connect or disconnect probes or test leads while they are connected to a voltage source.

Observe All Terminal Ratings. To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

Avoid Electric Shock. When using probe accessories, never exceed the lowest rating of the probe or its accessory, whichever is less, including the measurement category and voltage rating.

Avoid Electric Overload. To avoid injury or fire hazard, do not apply potential to any input, including the reference inputs, that varies from ground by more than the maximum rating for that input.

Avoid Exposed Circuitry and Do not Operate Without Covers. Do not touch exposed connections and components when power is present.

Inspect The Probe And Accessories. Before each use, inspect probe and accessories for damage (cuts, tears, defects in the probe body, accessories, cable jacket, etc.). Do not use if damaged.

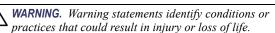
Do Not Operate in Wet/Damp Conditions.

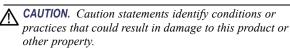
Do Not Operate in an Explosive Atmosphere.

Keep Product Surfaces Clean and Dry.

Safety Terms and Symbols Terms in This Manual.

These terms may appear in this manual:





Symbols on the Product. These symbols may appear on the product:



Address:

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Warranty Information

For warranty information, go to www.tektronix.com/warranty.