

# TriMode™ Probe Family

## TDP7000 Series TriMode Probes



The TDP7700 Series TriMode probes provide the highest probe fidelity available for real-time oscilloscopes. In addition, with connectivity innovations such as solder down tips with the probe's input buffer mounted only a few millimeters from the end of the tip, the TDP7700 series probes provide unmatched usability for connecting to today's most challenging electronic designs.

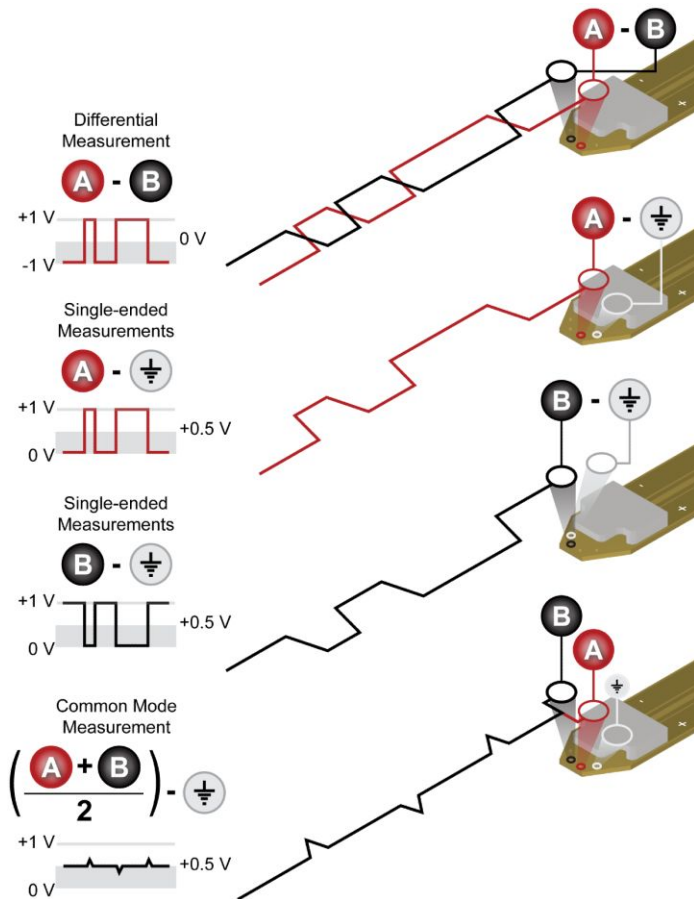
### Key features

- High bandwidth for signal fidelity
  - 8 GHz TDP7708
  - 6 GHz TDP7706
  - 4 GHz TDP7704
- Minimal device impact
  - Thin and flexible solder tips
  - Lightweight and flexible probe cable
  - Active buffer tip design for low probe loading
- Easy to connect TekFlex™ Connector technology
  - Pinch-to-Open accessory connector
  - Versatile Connectivity - solder down tips, optional browser for handheld or fixtured probing, and coaxial input (SMA adapter)
  - Cross compatibility with P7700 series tip accessories
  - Full Bandwidth to 8 GHz
  - Probe cable and solder down tips operate over an extended temperature range

- Probe and tip specific S-parameters
  - Full AC calibration of the probe and tip's signal path based upon unique s-parameter models
  - Unique DSP filters created for each probe and tip
- TekVPI+<sup>®</sup> interface for oscilloscope/probe control and usability
  - Direct control via probe buttons or from the oscilloscope's menus
  - Automated control of probe settings via the oscilloscope
  - Automatic recognition of the probe and tip when attached to the oscilloscope
  - Remote control of probe through the oscilloscope

## TDP7700 Series TriMode Probes

With TriMode probing one probe setup makes differential, single ended, and common mode measurements accurately. This unique capability allows you to work more effectively and efficiently, switching between differential, single ended and common mode measurements without moving the probe's connection points.



## TekFlex connector technology

The TDP7700 Series TriMode probes use the new TekFlex connector technology that combines a high speed signal path with power and communication support for an active buffer tip in a single, easy to connect accessory connector. The TekFlex connector has a pinch-to-open design that when open requires minimal force to attach an accessory tip. When the TekFlex connector is closed, it provides a secure connection to the accessory to avoid accidental disconnections.

With the TekFlex connector, the TDP7700 series probes offer a set of active probe tips with the probe's buffer amplifier only millimeters from the input connections. The short signal path enabled with the active tips provides high fidelity and a high impedance input. It also minimizes signal loss, capacitance, and additive noise.



P77STFLXA solder down, flex-circuit accessory with an active buffer amplifier on its tip.



P77STFLXB solder down, flex-circuit accessory provides a probing solution for DDR4 and LPDDR4 electrical validation when used with Nexus XH Series Interposers.



P77STCABL solder down accessory with a long reach, flexible cable combined with an active buffer amplifier on the tip.

## Browser accessory for handheld probing

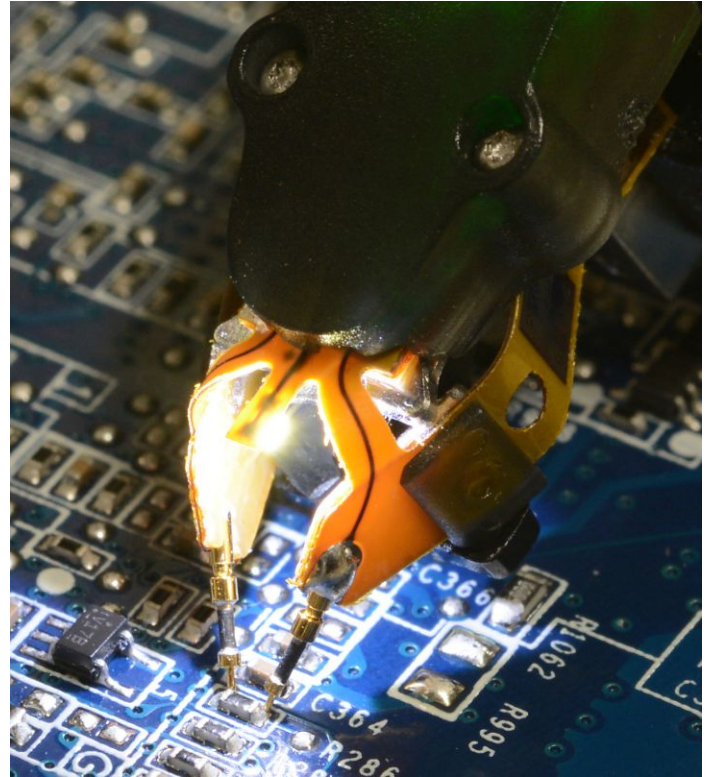
When you need to make a quick measurement or debug a problem, the TDP7700 series browser accessory provides a simple to use option. With precision engineered tips that are easy to see and position accurately, the P77BRWSR handheld browser accessory enables hand or fixtured probing and is ideal for probing fine pitch components and differential traces with spacing as narrow as 0.2 mm (.008 in).



P77BRWSR handheld browser accessory enables hand or fixtured probing with adjustable tip spacing.

The browser's tips have a full range of compliance and are adjustable in spacing using a convenient thumb wheel. A headlight on the tip enhances visibility of the probe point and can be switched on and off as needed. The browser tips are constructed of high strength BeCu and super-ceramic resistors<sup>1</sup>. With 16 GHz bandwidth performance, the P77BRWSR handheld browser accessory enables hand or fixtured probing with signal fidelity and convenience.

<sup>1</sup> Patent pending pin technology

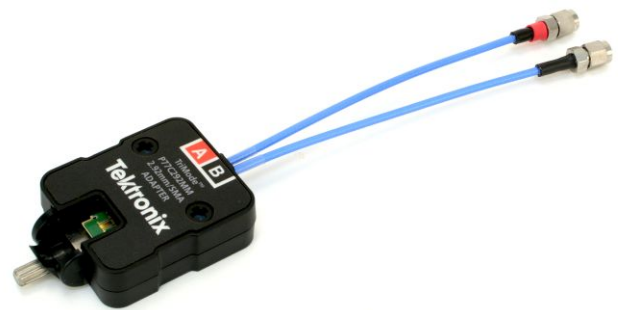


Headlight on P77BRWSR handheld browser accessory enables hand or fixtured probing and enhances visibility of the probe point

## Coaxial input (SMA) adapter

RF/coaxial connectors, such as SMA, are often found on test fixtures or on prototype board designs. Attaching a TDP7700 series probe to these on-board connectors is easy with the SMA adapter. The P77C292MM adapter allows you to connect to 2.92 mm, 3.5 mm or SMA connectors with full bandwidth and low noise. The P77C292MM adapter includes TriMode functionality enabling differential, single ended, and common mode measurements.

The termination voltage can be set manually or automatically using voltage sense circuitry in the TDP7700 probe and covers a range of  $\pm 4$  V.



P77C292MM SMA/2.92mm adapter for connecting to coaxial connectors

## Specifications

Specifications are subject to change.

All specifications apply to all models unless noted otherwise.

Characteristic	Description
Bandwidth (typical) TDP7704 TDP7706 TDP7708	4 GHz 6 GHz 8 GHz
Operating Voltage Window	±4 V ±5.25 V (active tip) ±10 V (browser tip)
Differential Input Range	±2V ±5V (active tip) ±12V (browser tip)
DC input resistance (differential)	50 Ω (P77C292MM tip) 100k Ω (active tips) 144k Ω (browser tip)
DC Accuracy	±2%
TriMode functionality	Yes Differential only (browser tip)

## Ordering Information







### TDP7700Models

TDP7708	8 GHz TriMode probe with TekFlex connector technology
TDP7706	6 GHz TriMode probe with TekFlex connector technology
TDP7704	4 GHz TriMode probe with TekFlex connector technology

### Standard accessories

All probes include the following items: Manual, Two solder-in tips, Certificate of traceable calibration, Calibration data report, One-year warranty



### Recommended accessories

Tektronix part number	Description	
P77STFLXA		Active, solder-in tip with TekFlex connector technology, 20 GHz (5 tips/kit) <sup>2</sup>
P77STFLXB		Flex circuit based DDR4/LPDDR4 memory solder in tips. These tips use flex circuit material and provide soldered, multi-point connections. They support full TriMode measurement capabilities and full probe bandwidth, 15 GHz (5 tips/kit).
P77STCABL		Active, coaxial cable based, solder-in tip with TekFlex connector technology, 20 GHz
P77BRWSR		Browser accessory with TekFlex connector technology, 8 GHz
P77C292MM		SMA Coaxial adapter with TekFlex connector technology, 20 GHz
TEK-CDA		Compensation and Deskew accessory <sup>3</sup>

<sup>2</sup> Each probe ships with two of these solder-in tips as standard accessories.

<sup>3</sup> Accessory instructions can be downloaded from [www.tek.com/downloads](http://www.tek.com/downloads); search for Tek-CDA.

Tektronix part number	Description	Description
407-6019-xx		Probe adapter to attach the browser to the PPM203B articulated arm/positioner
020-3162-xx		Replacement tip for browser accessory
020-3160-xx		Browser pen wand
020-3161-xx		Browser hands-free tripod
121-1003-xx		Magnetic cable holder
129-1867-xx		Large metal cable band
129-1857-xx		Small metal cable band
020-3163-xx		Browser adapters
196-3436-xx		Browser ground lead
016-2111-xx		Color bands

Tektronix part number	Description	
017-0103-xx		38 AWG wire spool
020-3167-xx		Double-sided adhesive tape

CE



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



**ASEAN / Australasia** (65) 6356 3900  
**Belgium** 00800 2255 4835\*  
**Central East Europe and the Baltics** +41 52 675 3777  
**Finland** +41 52 675 3777  
**Hong Kong** 400 820 5835  
**Japan** 81 (3) 6714 3086  
**Middle East, Asia, and North Africa** +41 52 675 3777  
**People's Republic of China** 400 820 5835  
**Republic of Korea** +822 6917 5084, 822 6917 5080  
**Spain** 00800 2255 4835\*  
**Taiwan** 886 (2) 2656 6688

**Austria** 00800 2255 4835\*  
**Brazil** +55 (11) 3759 7627  
**Central Europe & Greece** +41 52 675 3777  
**France** 00800 2255 4835\*  
**India** 000 800 650 1835  
**Luxembourg** +41 52 675 3777  
**The Netherlands** 00800 2255 4835\*  
**Poland** +41 52 675 3777  
**Russia & CIS** +7 (495) 6647564  
**Sweden** 00800 2255 4835\*  
**United Kingdom & Ireland** 00800 2255 4835\*

**Balkans, Israel, South Africa and other ISE Countries** +41 52 675 3777  
**Canada** 1 800 833 9200  
**Denmark** +45 80 88 1401  
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**Norway** 800 16098  
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**South Africa** +41 52 675 3777  
**Switzerland** 00800 2255 4835\*  
**USA** 1 800 833 9200

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

**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.tek.com](http://www.tek.com).

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