Differential Probes

Features & Benefits

Outstanding Electrical Performance
- 3.5 GHz & 1.5 GHz Bandwidth Models-Accurate Measurements for Serial and Digital Applications
- Excellent Common Mode Rejection-Reduces Measurement Errors In Higher Common Environments
- Low Capacitive and Resistive Loading-Maintains Signal Fidelity and Reduces DC Biasing Interactions

Versatile Mechanical Performance
- Compact Probe Head Size for Probing Small Geometry Circuit Elements
- DUT Attachment Accessories Enable Connection to Fine Spaced SMDs
- Robust Design for Reliability

Easy to Use
- Connects Directly to DPO7000, DPO4000 and MSO4000 Series Oscilloscopes Using TekVPI Probe Interface
- Provides Automatic Units Scaling and Readout on the Oscilloscopes Display
- Easy Access to Probe Comp Box Controls or Oscilloscope Probe Menu Display for Probe Status, Setup Control, and Diagnostic Information

Integrated Scope/Probe System
- Direct Connection to and Powered from TekVPI Oscilloscope Interface (Connects directly to TekVPI scopes without the need of an external power supply, like many competitors require)
- Single Button Oscilloscope Probe Menu Access
- Setup and Control from Probe Comp Box or Oscilloscope User Interface
- AutoZero-Zeros Out Output Offset
- Remote GPIB/USB Probe Control Through the Oscilloscope (requires TEK-USB-488 Adapter for GPIB control on DPO4000 and MSO4000)

 Applications

Design, Validation, Debugging and Characterization of Common High-speed Serial Bus Designs:
  - I2C
  - CAN/LIN
  - SPI
  - Serial ATA
  - Ethernet (GbE)
  - USB 2.0
  - FireWire (1394b)

Signal Integrity, Jitter and Timing Analysis

Manufacturing Engineering and Test
Differential Probes • TDP1500 • TDP3500

▶ Characteristics

Bandwidth (Probe Only)  ≥1.5 GHz warranted (TDP1500)
≥3.5 GHz warranted (TDP3500)
Attenuation (Probe Only) 1X/10X (TDP1500)
5X (TDP3500)
Rise Time (Probe Only) ≤265 ps typical (TDP1500)
≤110 ps typical (TDP3500)
Differential Input Capacitance ≤1 pf (TDP1500)
≤0.3 pf (TDP3500)
Differential Input Resistance 200 kΩ (TDP1500)
100 kΩ (TDP3500)
Differential Input Dynamic Range  ±8.5V (10X) (TDP1500)
±850mV (1X) (TDP1500)
±2V (TDP3500)
Common Mode Rejection Ratio CMRR >60 dB @ 1 MHz (TDP1500, TDP3500); >25 dB @ 1 GHz (TDP1500, TDP3500)
Input Offset Range ±7 V (10X or 1X) (TDP1500)
±1V (TDP3500)
Noise <50 nV/√Hz (TDP1500)
≈35 nV/√Hz (TDP3500)
Max Input Voltage (Non-destruct) ±25 V (DC+pkAC) (TDP1500)
±25V (DC+pkAC) (TDP3500)
Propagation Delay 5.4 ns typical (TDP1500); 5.4 ns typical (TDP1500)

▶ Ordering Information

TDP1500
1.5 GHz Differential Probe with TekVPI Interface, Certificate of Traceable Calibration Standard.

TDP3500
3.5 GHz Differential Probe with TekVPI Interface, Certificate of Traceable Calibration Standard.

TDP1500-Standard Accessories Included

<table>
<thead>
<tr>
<th>Description</th>
<th>QTY Shipped</th>
<th>Reorder Part No.</th>
<th>Reorder QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pouch, Nylon Carrying Case with inserts</td>
<td>1 each</td>
<td>016-1952-XX</td>
<td>1 each</td>
</tr>
</tbody>
</table>

Documentation Kit TDP1500- Includes: 1 each Kit 020-2866-00 (English w/Standard) 1 each
020-2891-00 (Japanese w/Opt L5) 1 each
020-2892-00 (Simplified Chinese w/Opt L7) 1 each

Certificate of Traceability | 1 each | Standard w/Probe | 1 each |

Accessory Kit TDP1500 (see contents listed below 0 thru 10) | 1 each | 020-2702-XX | 1 each |

- 8) Plastic Accessory Box | 1 each | 006-7164-00 | |
- 1) Straight Pins | 8 each | 016-1891-XX | Pkg of 8 each |
- 2) Longhorn VIA Adapter | Pkg of 5 each | 016-1780-XX | Pkg of 5 each |
- 1) 1 Inch Solder Down | 1 each | 196-3504-XX | 1 each |
- 3) 3 Inch Solder Down | 1 each | 196-3505-XX | 1 each |
- 4) Y-Lead Adapter | 2 each | 196-3434-XX | 1 each |
- 5) MicroCKT Test Tip | 3 each | 206-0569-XX | 1 each |
- 6) Tip Saver | 2 each | 196-1781-XX | 2 each |
- 3) 3 Inch Ground Lead | 2 each | 196-3437-XX | Pkg of 2 each |
- 9) Marker Band Set (2 each of 5 colors) | 1 each | 016-1315-XX | 1 each |
- 10) Accessory Performance Summary and Reorder Sheet | 1 each | 001-1412-XX | 1 each |

TDP1500 and TDP3500 are powered directly by the DPO7000, DPO4000 and MSO4000 Series Oscilloscopes with TekVPI probe interface.

Recommended Oscilloscopes
DPO7000, DPO4000, MSO4000 Series Oscilloscopes with TekVPI probe interface.

Minimum System Requirements/Instrument Compatibility
The TDP 3500 is fully supported on DPO7000, DPO4000, and MSO4000. The TDP1500 is fully supported on the DPO4000 and MSO4000. TDP1500 functions properly with DPO7000 series firmware version 4.0.0 and above, but does not provide range control on the oscilloscope menu.

Differential Probes • www.tektronix.com/accessories
## TDP3500 - Standard Accessories Included

<table>
<thead>
<tr>
<th>Description</th>
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<th>Reorder Part No.</th>
<th>Reorder QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pouch, Nylon Carrying Case with inserts</td>
<td>1 each</td>
<td>016-1952-XX</td>
<td>1 each</td>
</tr>
<tr>
<td>Documentation Kit TDP3500 - Includes: Printed User Manual (English 071-2212-XX; Japanese 071-2213-XX; Simplified Chinese 071-2214-XX) and a CD containing (Technical Reference Manual PDF English 071-2297-xx)</td>
<td>1 each Kit</td>
<td>020-2867-00 (English w/Standard) 1 each</td>
<td>020-2893-00 (Japanese w/Opt L5) 1 each</td>
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<tr>
<td>Anti-Static Wrist Strap</td>
<td>1 each</td>
<td>006-3415-xx</td>
<td>1 each</td>
</tr>
<tr>
<td>Certificate of Traceability</td>
<td>1 each</td>
<td>Standard w/Probe 1 each</td>
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<tr>
<td>Accessory Kit TDP3500 (see contents listed below 0 through 7)</td>
<td>1 each</td>
<td>020-2883-XX</td>
<td>1 each</td>
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<tr>
<td>1) Plastic Accessory Box</td>
<td>1 each</td>
<td>006-7164-00</td>
<td>1 each</td>
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<tr>
<td>1) Variable Spacing Tip Adapter</td>
<td>Pkg of 4 each</td>
<td>016-1885-XX</td>
<td>Pkg of 4 each</td>
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<tr>
<td>2) Square Pin Adapter</td>
<td>Pkg of 4 each</td>
<td>016-1884-XX</td>
<td>Pkg of 4 each</td>
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<tr>
<td>3) Y-Lead Adapter</td>
<td>2 each</td>
<td>196-3434-XX</td>
<td>1 each</td>
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<tr>
<td>4) MicroCKT Test Tip</td>
<td>3 each</td>
<td>206-0569-XX</td>
<td>1 each</td>
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<tr>
<td>5) 3 Inch Ground Lead</td>
<td>2 each</td>
<td>196-3469-XX</td>
<td>Pkg of 2 each</td>
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<tr>
<td>6) Marker Band Set (2 each of 5 colors)</td>
<td>1 each</td>
<td>016-1315-XX</td>
<td>1 each</td>
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<tr>
<td>7) Accessory Performance Summary and Reorder Sheet</td>
<td>1 each</td>
<td>001-1435-XX</td>
<td>1 each</td>
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<td>Accessory Kit; Solder-In Differential Probes TDP3500, P6330, P7330, P7350</td>
<td>1 each</td>
<td>020-2505-XX</td>
<td>1 each</td>
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<tr>
<td>1) Adapter, Resistor/Wire</td>
<td>Pkg of 2 each</td>
<td>016-1926-XX</td>
<td>Pkg of 2 each</td>
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<tr>
<td>2) Wire Assembly w/0.02 dia</td>
<td>Pkg of 10 each</td>
<td>016-1930-XX</td>
<td>Pkg of 10 each</td>
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<tr>
<td>3) Wire Assembly w/0.008 dia</td>
<td>Pkg of 10 each</td>
<td>016-1931-XX</td>
<td>Pkg of 10 each</td>
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<tr>
<td>4) 10 Ω Resistor w/0.02 dia wire</td>
<td>Pkg of 10 each</td>
<td>016-1927-XX</td>
<td>Pkg of 10 each</td>
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<tr>
<td>5) 10 Ω Resistor w/0.008 dia wire</td>
<td>Pkg of 10 each</td>
<td>016-1933-XX</td>
<td>Pkg of 10 each</td>
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<tr>
<td>6) 20 Ω Resistor w/0.02 dia wire</td>
<td>Pkg of 10 each</td>
<td>016-1928-XX</td>
<td>Pkg of 10 each</td>
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<tr>
<td>7) 20 Ω Resistor w/0.008 dia wire</td>
<td>Pkg of 10 each</td>
<td>016-1934-XX</td>
<td>Pkg of 10 each</td>
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## Optional Accessories

<table>
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<tr>
<th>Description</th>
<th>TDP1500</th>
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<th>Ordering Part Number (Qty)</th>
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<tbody>
<tr>
<td>BNC to Probe Tip Adapter</td>
<td>X</td>
<td>-</td>
<td>679-4094-xx (set of 1)</td>
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<tr>
<td>TwinFoot™ Adapter</td>
<td>X</td>
<td>X</td>
<td>016-1785-xx (set of 4)</td>
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<tr>
<td>TwinTip™ Adapter</td>
<td>X</td>
<td>-</td>
<td>016-1786-xx (set of 4)</td>
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<td>VanTip™ Adapter</td>
<td>X</td>
<td>-</td>
<td>016-1890-xx (set of 6)</td>
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<tr>
<td>IC Micro Grabber</td>
<td>X</td>
<td>X</td>
<td>013-0309-xx (set of 2)</td>
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<tr>
<td>Micro KlipChip™ Adapter</td>
<td>X</td>
<td>-</td>
<td>SMK-4 (set of 4)</td>
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<tr>
<td>IEEE 1394 Adapter</td>
<td>X</td>
<td>-</td>
<td>679-5027-xx (set of 1)</td>
</tr>
<tr>
<td>Short Ground Contact</td>
<td>X</td>
<td>-</td>
<td>016-1783-xx (set of 10)</td>
</tr>
<tr>
<td>Spring Loaded Ground</td>
<td>X</td>
<td>-</td>
<td>016-1782-xx (set of 6)</td>
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</table>
Differential Probes
> TDP1500 • TDP3500

> Manual Options

Opt. L0 English user instruction manual (Standard)
Opt. L5 Japanese user instruction manual
Opt. L7 Simplified Chinese instruction manual

> 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
Opt. R5 Repair Service 5 years
Opt. CA1 Single calibration event, or coverage for the designated calibration interval, whichever comes first.

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www.tektronix.com

Products are manufactured in ISO registered facilities.

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