Tektronix TPP0500B

Tektronix TPP0500B Oscilloscope Probe User Manual

This manual provides essential information for the safe and effective use of the Tektronix TPP0500B Oscilloscope Probe.

1. Introduction

The Tektronix TPP0500B is a high-bandwidth, general-purpose passive voltage probe designed for precise signal acquisition. It is compatible with Tektronix MDO3000, MDO4000, MSO/DPO5000, and 5 Series MSO Series oscilloscopes. This probe offers up to 1 GHz of analog bandwidth with less than 3.9 pF of capacitive loading, ensuring accurate high-speed passive probing and minimal impact on the circuit under test.

2. Key Features

- **1 GHz Bandwidth:** Capable of accurately measuring high-frequency signals.
- **<4 pF Input Capacitance:** Minimizes loading effects on the circuit under test.
- **10X Attenuation Factor:** Extends the dynamic range of the oscilloscope.
- **300 V CAT II Input Voltage:** Suitable for a wide range of applications.
- **Compact Probe Head:** Facilitates probing small-geometry circuit elements.

3. Setup Instructions

Follow these steps to properly set up your TPP0500B oscilloscope probe:

1. **Connect to Oscilloscope:** Plug the TekVPI interface connector of the TPP0500B probe into an available TekVPI channel on your compatible Tektronix oscilloscope. Ensure a secure connection.
2. **Attach Ground Lead:** Connect the ground lead (typically with an alligator clip) from the probe to the ground reference of the circuit you are testing. A stable ground connection is crucial for accurate measurements.
3. **Select Probe Tip:** Choose the appropriate probe tip for your application. The probe typically comes with various tips for different connection requirements.
4. **Probe Compensation:** Before taking measurements, compensate the probe to match the input impedance of your oscilloscope. Connect the probe tip to the oscilloscope's probe compensation output (usually a square wave signal) and the ground lead to the compensation ground. Adjust the compensation trimmer on the probe (if present) until the square wave displayed on the oscilloscope is flat-topped, without overshoot

or undershoot. Refer to your oscilloscope's manual for specific compensation procedures.

This image displays the Tektronix TPP0500B oscilloscope probe, featuring its main body, flexible cable, and various accessories. These accessories typically include a removable probe tip, a ground lead with an alligator clip, and colored identification rings for channel differentiation. The probe is designed for connecting to an oscilloscope to measure electrical signals.

4. Operating Instructions

Once the probe is set up and compensated, you can begin taking measurements:

- **Connect to Test Point:** Carefully connect the probe tip to the desired test point on your circuit. Ensure a firm and stable connection.
- **Observe Waveform:** Adjust the oscilloscope's vertical and horizontal settings to display the waveform clearly. The 10X attenuation factor means the voltage displayed on the oscilloscope will be one-tenth of the actual voltage at the probe tip. Most modern oscilloscopes with TekVPI interfaces will automatically detect the probe and adjust the vertical scaling accordingly.
- **Safety Precautions:** Always be aware of the voltage limits of the probe (300 V CAT II). Do not exceed these limits. Ensure proper grounding of both the oscilloscope and the circuit under test to prevent electrical shock and ensure accurate readings. Avoid touching live circuit components with your hands or other conductive materials while probing.

5. Maintenance

Proper care and maintenance will extend the life and accuracy of your TPP0500B probe:

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the probe. If necessary, a cloth lightly dampened with isopropyl alcohol can be used. Avoid using harsh chemicals or abrasive materials. Ensure no liquid enters the probe body or connectors.
- **Storage:** Store the probe in a clean, dry environment, preferably in its original packaging or a protective case, when not in use. Avoid exposing it to extreme temperatures, humidity, or direct sunlight.
- **Handling:** Handle the probe carefully. Do not bend the cable sharply or apply excessive force to the probe tip or connector. Avoid dropping the probe.
- **Inspection:** Periodically inspect the probe cable, connectors, and tip for any signs of damage, such as cuts, cracks, or bent pins. Do not use a damaged probe.

6. Troubleshooting

If you encounter issues with your TPP0500B probe, consider the following:

- **No Signal or Weak Signal:**

- Ensure the probe is securely connected to both the oscilloscope and the circuit under test.
- Verify the ground lead is properly connected.
- Check the oscilloscope's input channel settings and vertical scale.
- Confirm the circuit under test is powered and functioning correctly.

- **Distorted Waveform:**
  - Perform probe compensation as described in the Setup section.
  - Check for damaged probe tips or cables.
  - Ensure the probe's bandwidth is sufficient for the signal frequency.
- **Incorrect Voltage Readings:**
  - Verify the oscilloscope's vertical scale is correctly calibrated and set for a 10X probe. TekVPI probes usually auto-detect.
  - Ensure the probe is properly compensated.

If problems persist, contact Tektronix customer support.

7. Specifications

Specification	Value
Model Number	TPP0500B
Bandwidth	1 GHz
Attenuation Factor	10X
Input Capacitance	<4 pF
Input Resistance	10 MΩ (when terminated into 1 MΩ oscilloscope input)
Maximum Input Voltage	300 V CAT II
Probe Head	Compact design for small-geometry circuits
Interface	TekVPI
Manufacturer	Tektronix
Item Weight	1 pound (approximate)

8. Warranty Information

The Tektronix TPP0500B Oscilloscope Probe is covered by a manufacturer's warranty. For detailed information regarding warranty terms, duration, and conditions, please refer to the official Tektronix website or the warranty card included with your product. Keep your proof of purchase for warranty claims.

9. Customer Support

For technical assistance, service, or further inquiries regarding your Tektronix TPP0500B probe, please contact Tektronix customer support:

- **Website:** Visit the official Tektronix website for product documentation, FAQs, and support resources.
- **Contact Information:** Refer to the 'Contact Us' section on the Tektronix website for phone numbers and email support options specific to your region.