



067-1478-00
Power Measurements
Deskew Fixture
Instructions

071-1175-01



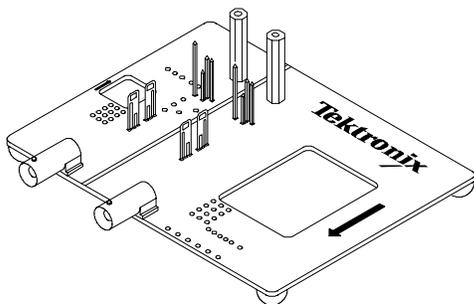
Safety Summary

To avoid potential hazards, use this product only as specified.
 To avoid fire or personal injury, do not operate in wet/damp conditions.
 Keep product surfaces clean and dry.

Safety terms in this manual

⚠ WARNING. *These statements identify conditions or practices that could result in personal injury or loss of life.*

Overview



This fixture converts the PROBE COMPENSATION output of the TDS7000 or the AUX OUT output of the TDS5000 into a set of test point connections that provide you with a convenient way to compensate for timing differences between voltage and current probes.

Use the table below as a guide to connect a variety of Tektronix voltage and current probes together on the deskew fixture.

Connecting to the Instrument

The fixture has two BNC inputs, a large current loop and a small current loop. Use the BNC cable (included) to connect the instrument PROBE COMPENSATION output (TDS7000), AUX OUT output (TDS5000), or external generator to either the large or small input. The input you use depends on the type of probes you have.

⚠ CAUTION. *The maximum allowable voltage applied to either input is ± 7 V RMS. Voltages in excess of ± 7 V RMS may damage the deskew fixture.*

Use this current loop / input side	Current probes ^{1,2}	Voltage probes ^{1,2}
Small current loop	TCP202 A6302/AM503XX A6312/AM503XX TCP305/TCPA300 TCP312/TCPA300	Passive: P6139A P5050 and other 10X passive probes Active single-ended and differential: P6243 P6245 P6246 P6247 P6248
Large current loop	TCP303/TCPA300 A6303/AM503XX	High voltage: P5100 ³ P5200 (500X) ³ P5205 (500X) ³ P5210 ³ P6135A

- 1 Not all probes are useable with all instruments.**
- 2 Use oscilloscope averaging mode to improve deskew adjustability.**
- 3 Requires external signal source.**

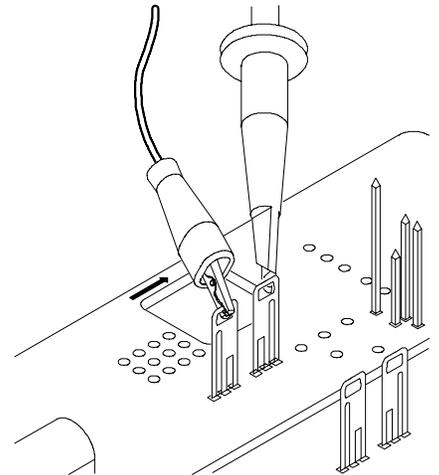
Connecting Probes

⚠ WARNING. *To avoid personal injury, use care while connecting probe tips to the square pins on the fixture. The ends of the square pins are sharp.*

The following diagrams show how to attach each type of probe tip to the fixture. Refer to the ground symbols screened on the fixture to establish the correct polarity.

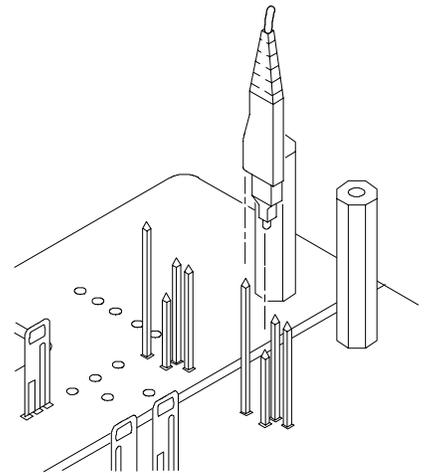
P6139A

Connect the probe tip and the ground lead to the two terminals as shown.



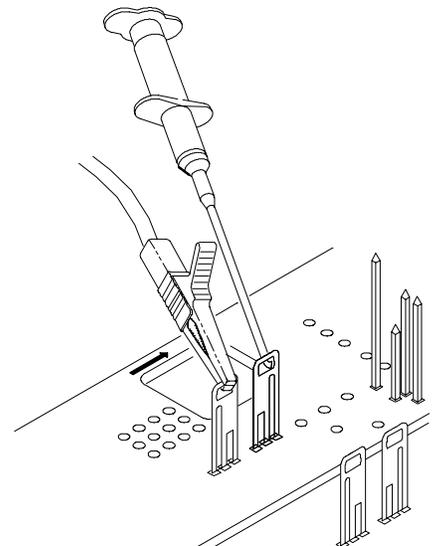
P6243 or P6245

Connect the probe tip to the short pin and the probe ground to the long pin as shown.



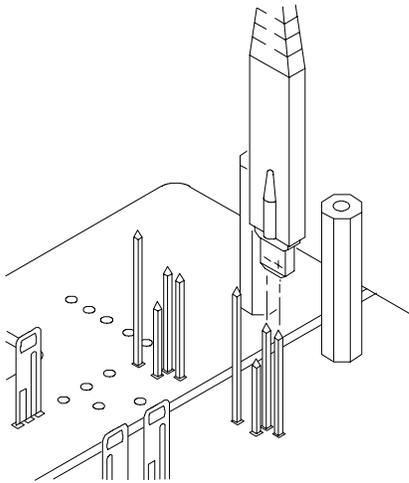
P5200 Series

Connect the probe tip and the ground lead to the two terminals as shown.



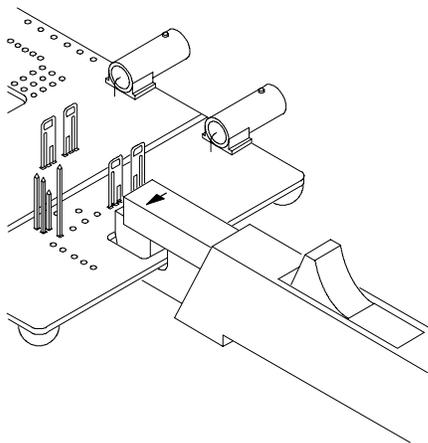
P6246, P6247, or P6248

Connect the probe + input to the signal pin and the probe - input to the ground pin as shown. There is no connection to the probe ground input.



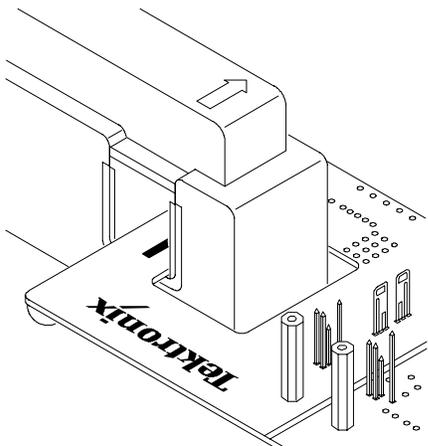
TCP202, TCP312, TCP305, A6302, A6312, etc.

Connect the current probe around the current loop as shown. Be sure to align the polarity arrows on the current probe and the fixture, and make sure the current probe slider is closed and locked.



TCP303, A6303

Connect the current probe around the current loop as shown. Be sure to align the polarity arrows on the current probe and the fixture, and make sure the current probe slider is closed and locked.



Using the Fixture

Do these steps to use the fixture. For best results, warm up the equipment for 20 minutes before performing these functions.

Compensate Probe Timing (Deskew)

1. Connect the small- or large-current loop side of the fixture to the instrument according to the operation desired (see the table in *Connecting to the Instrument*).
2. Connect the probes to the fixture.
3. Display all channels that you want to deskew.
4. Push the **AUTOSET** button on the instrument front-panel.
5. Adjust vertical **SCALE**, and **POSITION** (with active probes, adjusting **offset** may be required) for each channel so that the signals overlap and are centered on-screen.
6. Adjust horizontal **POSITION** so that a triggered rising edge is at center screen.
7. Adjust horizontal **SCALE** so that the differences in the channel delays are clearly visible.
8. Adjust horizontal **POSITION** again so that the first rising edge is exactly at center screen. The fastest probe is connected to this channel. (The fastest probe is probably the one with the shortest cable or the highest bandwidth.)
9. Touch the **VERT** button or use the **Vertical** menu to display the vertical control window.
10. Touch the Probe **Deskew** button to display the channel-deskew control window.
11. Select one of the slower channels.

NOTE. If possible, do the next step at a signal amplitude within the same attenuator range (vertical scale) as your planned signal measurements. Any change to the vertical scale after deskew is complete may introduce a new attenuation level (you can generally hear attenuator settings change) and therefore a slightly different signal path. This different path may cause a 200 ps variation in timing accuracy between channels.

12. Adjust the deskew time for that channel so that the signal aligns with that of the fastest channel.
13. Repeat steps 11 and 12 for each additional channel that you want to deskew.
14. Remove the connections.

Schematic

The schematic diagrams that follow show typical connections for both small- and large-style current probes.

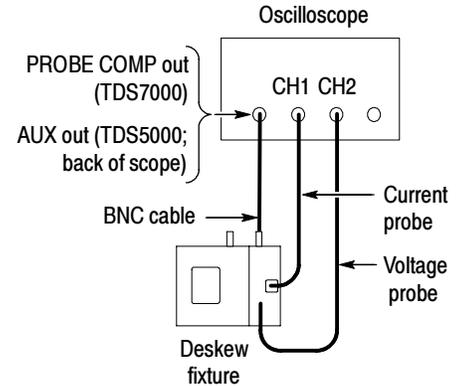


Figure 1: Typical small current probe connection

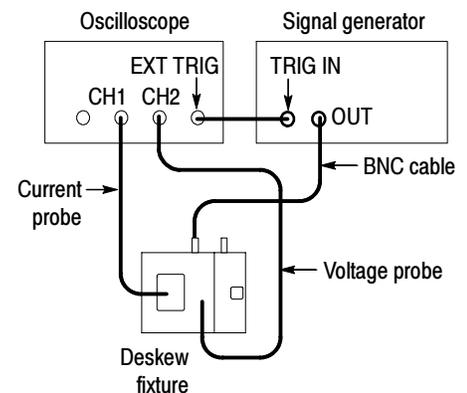


Figure 2: Typical large current probe connection using an external signal source

CAUTION. The maximum allowable voltage applied to either input is ± 7 V RMS. Voltages in excess of ± 7 V RMS may damage the deskew fixture.