Service Manual

Tektronix

P7330 3.5 GHz Differential Probe

071-1057-00

Warning
The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries prior to performing service.

www.tektronix.com

071105700

Tektronix, Inc., P.O. Box 500, Beaverton, OR 97077

General 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.

Only qualified personnel should perform service procedures.

Do Not Service Alone. Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

While using this product, you may need to access other parts of the system. Read the *General Safety Summary* in other system manuals for warnings and cautions related to operating the system.

To Avoid Fire or Personal Injury

Connect and Disconnect Properly. 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.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

Do Not Operate Without Covers. Do not operate this product with covers or panels removed.

Do Not Operate With Suspected Failures. If you suspect there is damage to this product, have it inspected by qualified service personnel.

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in an Explosive Atmosphere.

Keep Product Surfaces Clean and Dry.

Provide Proper Ventilation. Refer to the manual's installation instructions for details on installing the product so it has proper ventilation.

Symbols and Terms

Terms in this Manual. These terms may appear in this manual:

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

CAUTION. *Caution statements identify conditions or practices that could result in damage to this product or other property.*

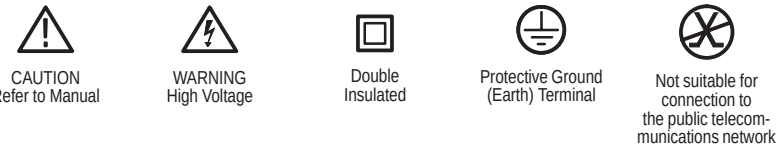
Terms on the Product. These terms may appear on the product:

DANGER indicates an injury hazard immediately accessible as you read the marking.

WARNING indicates an injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product. The following symbols may appear on the product:



Preface

This is the service manual for the P7330 3.5 GHz Differential Probe. Read this preface to learn how this manual is structured and where you can find other information related to servicing this product.

Manual Structure

This manual contains three sections – *Description*, *Performance Verification*, and *Adjustment Procedures*, and is intended to be used by qualified service personnel. Replaceable parts are limited to accessories and adapters, and are described in the Instruction Manual that is shipped with the probe.

Be sure to read the introductions to all procedures. These introductions provide important information needed to do the service correctly, safely, and efficiently.

Related Documentation

The probe is shipped with the following manual:

- *P7330 3.5 GHz Differential Probe Instruction Manual*. Tektronix part number 071-0758-XX.

Contacting Tektronix

Phone	1-800-833-9200*****
Address	Tektronix, Inc. Department or name (if known) 14200 SW Karl Braun Drive P.O. Box 500 Beaverton, OR 97077 USA
Web site	www.tektronix.com
Sales support	1-800-833-9200, select option 1*****
Service support	1-800-833-9200, select option 2*****
Technical support	Email: support@tektronix.com 1-800-833-9200, select option 3***** 6:00 a.m. – 5:00 p.m. Pacific time

*** This phone number is toll free in North America. After office hours, please leave a voice mail message.**
Outside North America, contact a Tektronix sales office or distributor; see the Tektronix web site for a list of offices.

Description

This document describes the *Performance Verification* and *Adjustment Procedures* for the P7330 Probe. There are no user-replaceable parts inside the probe. If the probe fails the performance verification procedure, and adjusting the probe cannot compensate for the failure, contact your Tektronix service center.

Performance Verification

Use the performance verification procedures to verify the warranted specifications of the P7330 probe. The recommended calibration interval is one year. No software is required to complete a performance verification of the probe.

The performance verification procedures check the following specifications:

- Output zero
- DC attenuation accuracy
- Rise time

Adjustments

The P7330 probe has two electronically-adjusted controls that do not need adjusting unless a performance verification yields a specification that is out of tolerance.

If you are making adjustments to the probe, you need the TekConnect Adjustment Software for the P7330 Probe. Refer to *Equipment Setup* in the *Adjustment Procedures* for instructions on finding and loading the adjustment software on your instrument.

The adjustment procedures describe the following adjustments for the probe:

- Offset zero
- DC CMRR
- Offset gain

Equipment Required

Refer to Table 1 for the equipment required to perform the service procedures.

Table 1: Equipment required for performance verification and adjustment procedures

Item description	Performance requirement	Recommended example
TekConnect adjustment software[1]	P7330 Probe	Optional Applications for Windows-Based Oscilloscopes CD
Sampling Oscilloscope	≥12.5 GHz bandwidth	Tektronix TDS8000
Sampling head, with extension cable	≥12.5 GHz bandwidth	Tektronix 80E0X with 012-1568-00 cable
Oscilloscope	TekConnect Interface	Tektronix TDS7404
TekConnect calibration adapter	TekConnect Interface	067-0422-00
Calibration Step Generator	250 mV step, ≤30 ps rise time	067-1338-0X
Probe Positioner	Three-axis adjustable	Tektronix PPM203B
Probe Calibration Fixture	See page 5	067-0419-00
Adapter	TekConnect-to-SMA	TCA-SMA
DC Power Supply	1 VDC at 1 mA	Tektronix PS280
DMM (2) with leads	0.05% accuracy, 0.1 mV resolution	Fluke 87 or equivalent
Feedthrough Termination	50 Ω ±0.05 Ω	011-0129-00
BNC-to-BNC coaxial cable	50 Ω coaxial cable	012-0057-01
Coaxial cable	Male-to-Male SMA	012-0649-00
Adapter	SMA Male-to-Male	015-1011-00
Adapter	SMA Female-to-Female	015-1012-00
Adapter	SMA Male-to-BNC Female	015-0554-00
Adapter	BNC Female-to-Dual Banana	103-0090-00
Adapter	Y-lead adapter	196-3468-00
Adapter	Square pin	016-1884-00
Adapters (2)	KlipChip adapter	206-0364-00
SMA torque wrench	5/16-in, 7 in-lb.	
SMA adapter wrench	7/32-in	

1 **Required for adjustment procedures only**

Special Adapters Required

Some of the adapters listed in Table 1 are custom-made and available only from Tektronix. The adapters are described on the following pages.

TekConnect-to-SMA Adapter

The TekConnect-to-SMA Adapter, Tektronix part number TCA-SMA, allows signals from an SMA cable or probe to be connected to a TekConnect input. See Figure 1. Connect and disconnect the adapter the same way as you do the P7330 Probe.

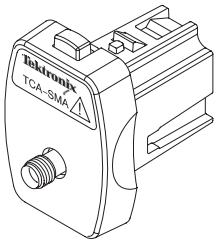


Figure 1: TekConnect-to-SMA adapter

TekConnect Interface Calibration Adapter

The TekConnect Interface Calibration Adapter, Tektronix part number 067-0422-00, connects between the host instrument and the probe under test, and provides connectors for probe signal and offset voltage measurements. See Figure 2.

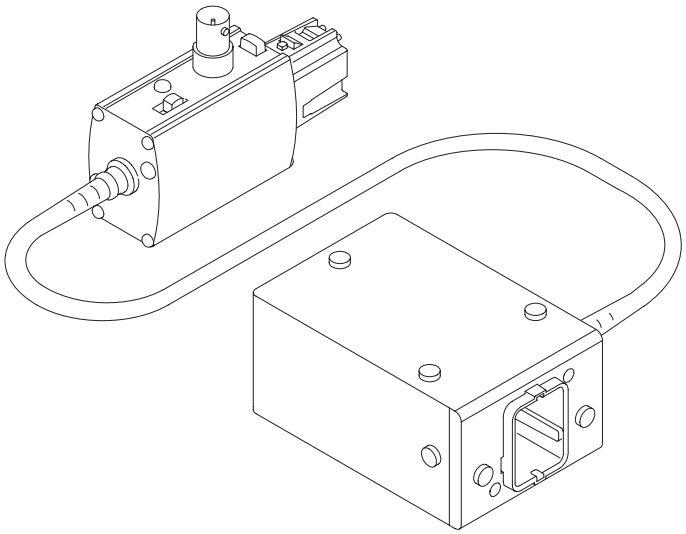
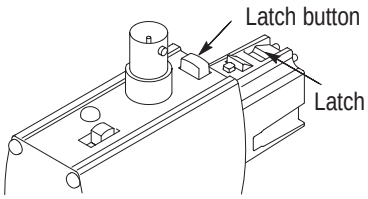
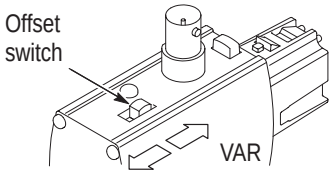
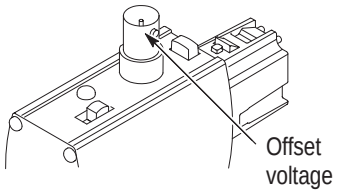
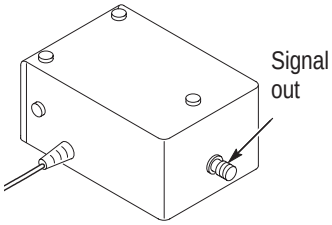


Figure 2: TekConnect Interface Calibration Adapter

When the adapter is connected to the oscilloscope, the adapter is identified as a valid calibration device. However, additional power supplies necessary to power the probe are not enabled until a TekConnect probe is connected to the adapter and identified by the oscilloscope. When a probe is detected through the adapter, the Volts/div readout on the oscilloscope displays ##.

Refer to Table 2 for features of the calibration adapter.

Table 2: TekConnect Interface Calibration Adapter features

Feature	Description
	**Latch button.** The spring-loaded latch mechanically retains the adapter to the oscilloscope. To release the adapter, grasp the adapter housing, depress the latch button, and pull the adapter straight out of the oscilloscope.
	**Offset output select switch.** The offset output switch selects between ground and the offset voltage level from the oscilloscope. Leave the switch in the ground position for the performance verification procedures. Move the switch to the variable position for the adjustment procedures.
	**Offset voltage.** The offset voltage of the probe is accessed through the BNC connector. Measure the offset voltage using a DVM, BNC coaxial cable, and BNC-to-dual-banana jack.
	**Signal out.** The SMA connector on the rear of the box allows for direct monitoring of the probe signal.

Probe Calibration Fixture

Some of these procedures use a probe calibration fixture, Tektronix part number 067-0419-XX.

The calibration fixture provides a means to test the probe for both common mode and differential mode measurements. SMA connectors allow stimulus signals to connect to the fixture and are located on the front and back of the fixture. The fixture is designed to be used with a probe positioner, such as a Tektronix PPM203B.

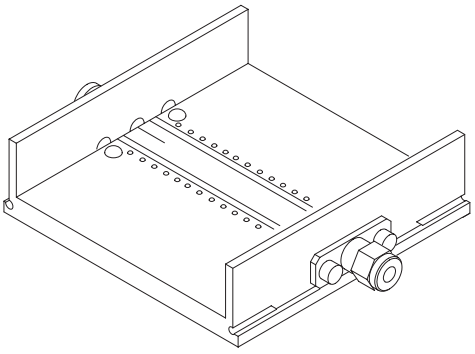


Figure 3: Probe Calibration Fixture

To use the Probe Calibration Fixture, do the following:

1. Connect the fixture to the test circuit using an SMA cable.
2. Connect the 50 Ω terminator included with the fixture to the unused SMA connector.
3. Insert and secure the probe in a probe positioner.
4. Position the probe over the fixture, using either the positioner coarse adjustment or otherwise manipulating the positioner arm in place.
5. Using the fine position and/or pressure adjust, maneuver the probe so that the pins contact the CM or DM test points, depending on which test you are performing. (See Figure 4 on page 6.)

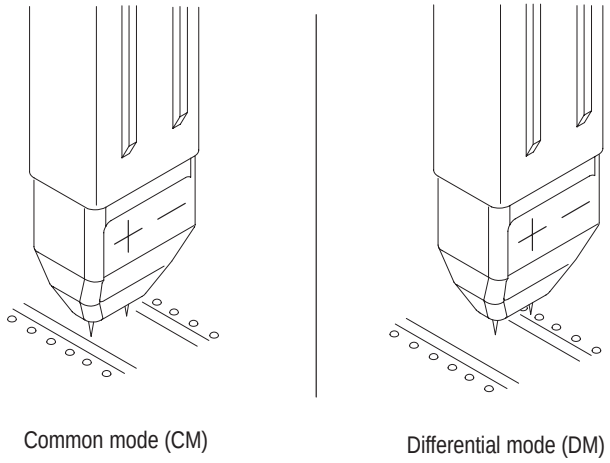


Figure 4: Probe Calibration Fixture test points

6. Verify that contact is made on both pins. (You may need to readjust the fine position and/or pressure adjustment to make positive contact with the test points.)

7. Proceed with the instructions according to your specific test .

Theory of Operation

Refer to Figure 5 as you read the following information.

There are three adjustments in the P7330 adjustment procedure: Offset Zero, DC CMRR, and Offset Gain. (The CMRR adjustment is not shown in Figure 5.) These adjustments are made using digitally controlled potentiometers that are controlled by a two–wire serial interface from the host oscilloscope. Because the adjustments are digitally controlled, the probe does not need to be disassembled as part of the adjustment procedure. The software application provides the control needed to make the adjustments to the probe.

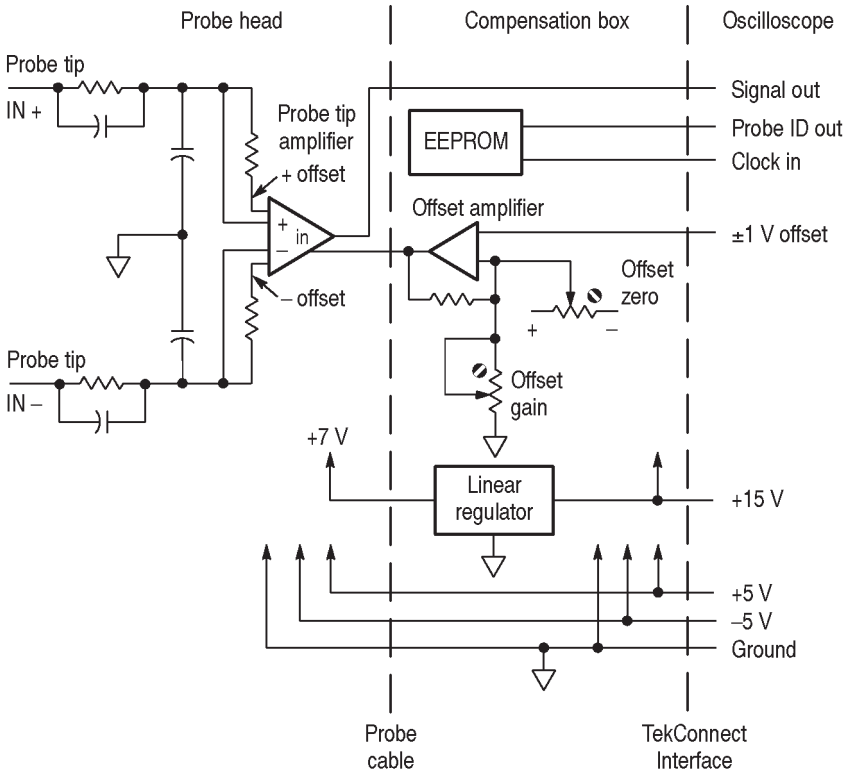


Figure 5: P7330 simplified schematic diagram

The offset signal from the oscilloscope extends the dynamic range of the P7330 probe by compensating for some of the DC voltage that may be part of the signal applied to the probe. Compensation is accomplished by summing the offset signal with the probe input signal at the probe input attenuator, as shown in Figure 5. The host oscilloscope supplies the offset signal (with a range of ±1 volt) to the offset amplifier in the probe. Since the offset scale factor of the

P7330 probe is the same as the input scale factor, the effective offset signal range is also ±1 volt.

The Offset Zero adjustment is used to null out any amplifier voltage offsets in the offset signal path. With no input signal at the probe input and no offset signal from the host oscilloscope, the Offset Zero is adjusted to produce 0.0000 V at the probe output. Since the P7330 probe is designed to operate into a host oscilloscope with a 50 ohm load, a precision 50 ohm feed thru terminator is used in the adjustment procedure.

The DC CMRR adjustment is used to optimize the common-mode rejection performance of the probe tip amplifier to DC signals. The AC CMRR performance of the P7330 probe is not adjustable, but is set by the probe tip amplifier design and manufacturing process.

The Offset Gain adjustment is used to adjust the offset amplifier gain for a precise 5X scale factor. Since the P7330 input signal scale factor has also been designed with a 5X scale factor, the Offset Gain is adjusted to null out the difference between a DC input signal and an offset signal from the host oscilloscope.

Performance Verification

Use the following procedures to verify specifications of the P7330 probe. Before beginning these procedures, refer to page 16 and photocopy the test record, and use it to record the performance test results. The recommended calibration interval is one year.

No software is required to do a performance verification of the P7330 probe.

These procedures test the following specifications:

- Output offset voltage
- DC gain accuracy
- Rise time

Equipment Setup

Use this procedure to set up the equipment to test the probe.

1. Connect the probe calibration adapter to the oscilloscope.
2. Connect the probe to the probe calibration adapter.
3. Turn on the oscilloscope and enable the channel that the probe calibration adapter is connected to.
4. Allow 30 minutes for the equipment to warm up.

Output Offset Voltage

1. Connect the equipment as shown in Figure 6.

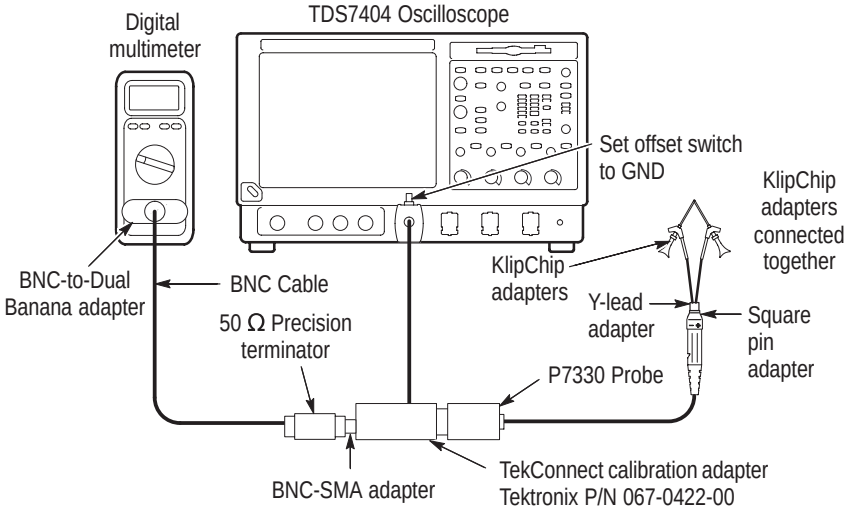


Figure 6: Setup for the output offset voltage test

2. Set the offset switch on the calibration adapter to **GND**.

NOTE. *Leave the offset switch in the ground position for all of the performance verification checks.*

3. Set the multimeter to read DC volts.
4. Verify that the output voltage is 0 V, ±10 mV.
5. Record the results on the test record.

DC Gain Accuracy

1. Connect the probe to the power supplies as shown in Figure 7 on page 11. Monitor the source voltage with one of the DMMs (DMM #1 in Figure 7).
2. Set the voltage on each power supply to approximately +0.25 V, to set a source voltage of about +0.5 V (+0.5 V differential mode, 0 V common mode). Record this source voltage as $V_{in}1$.

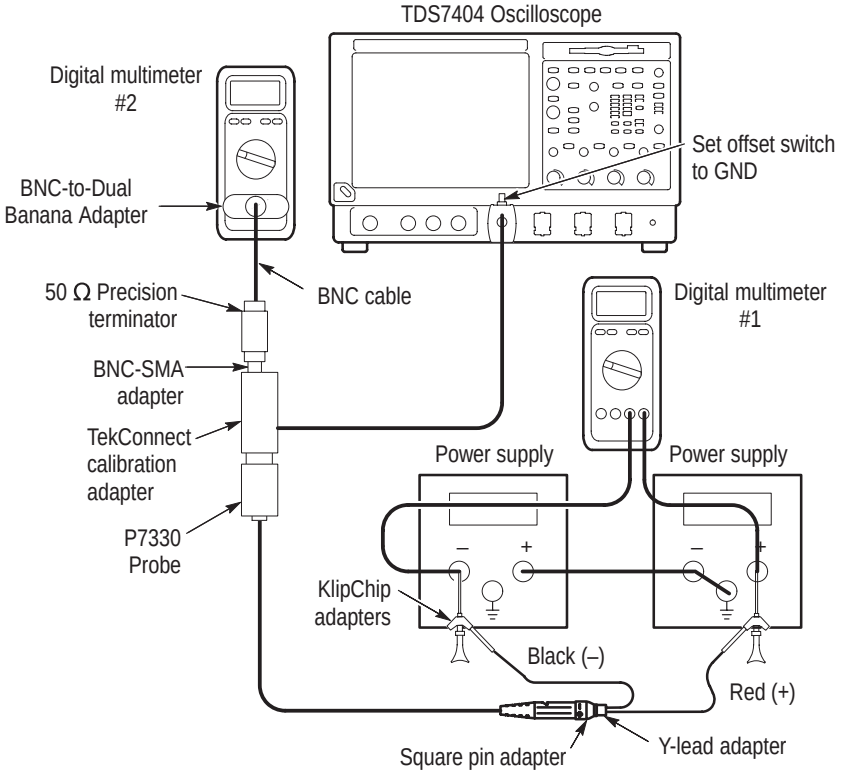


Figure 7: DC Gain Accuracy setup

3. Record the output voltage (on DMM #2) as $V_{out}1$.

4. Disconnect and reverse the red and black leads from the probe to the power supplies. Record the actual voltage (measured on DMM #1) as $V_{in}2$.

5. Record the output voltage (on DMM #2) as $V_{out}2$.

6. Calculate the gain and % error as follows:

$$gain = \frac{Vout1 - Vout2}{Vin1 - Vin2} \qquad \%error = \frac{measured\ gain - 0.2}{0.2} \times 100\%$$

Observe polarities when calculating; the negative values of $V_{in}2$ and $V_{out}2$ will yield positive numbers. Example:

$$gain = \frac{0.1007 - (-0.1012)}{0.498 - (-0.503)} = \frac{0.2019}{1.001} = 0.2017$$

$$\%error = \frac{0.2017 - 0.2}{0.2} \times 100\% = \frac{0.0017}{0.2} \times 100\% = +0.85\%$$

7. Verify that the gain is 0.2, ± 2%.

8. Record the calculated gain on the test record.

Rise Time

This procedure verifies that the probe meets rise time specifications. Two rise times are measured; the test system, and the test system with the probe included. The probe rise time is calculated using the two measurements.

1. Connect the test equipment as shown in Figure 8.

CAUTION. *Use care when working with SMA connectors: support equipment to avoid mechanical strain on the connectors, and use a torque wrench when tightening connections.*

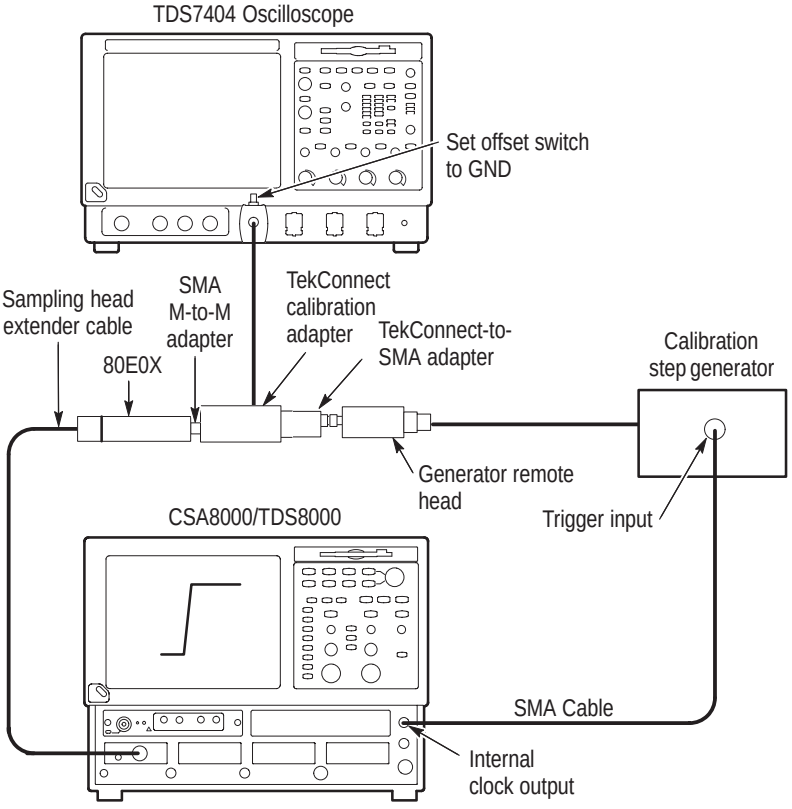


Figure 8: Test system rise time setup

2. Set the oscilloscope trigger to internal clock.

3. Select the channel you have connected to on the 80E0X sampling head, and then set the oscilloscope vertical scale to 50 mV/div.

***NOTE**. The output of the step generator rises from a –250 mV level to ground.*

4. Adjust the oscilloscope horizontal and vertical position controls to display a signal similar to that shown in Figure 8.
5. Set the oscilloscope horizontal scale to 50 ps/div, and center the waveform.
6. Use the oscilloscope measurement capability to display rise time. Increase the stability of the pulse edge measurement by using averaging, if available. Rise time is determined from the 10% and 90% amplitude points on the waveform. Record the rise time as t_s.

The following steps instruct you to assemble the test setup that includes the probe, as shown in Figure 9. The system and probe rise time (t_{s+p}) that you measure in step 17 is used to calculate the probe rise time (t_p) in step 18.

7. Set the step generator control switch to standby.
8. Remove the TekConnect-SMA adapter from the test setup.
9. Connect the probe to the TekConnect calibration adapter.
10. Connect the probe cal fixture to the step generator remote head and the terminator to the other input of the probe cal fixture.
11. Secure the probe head in the probe positioner.

The test setup should now be connected as shown in Figure 9 on page 14.

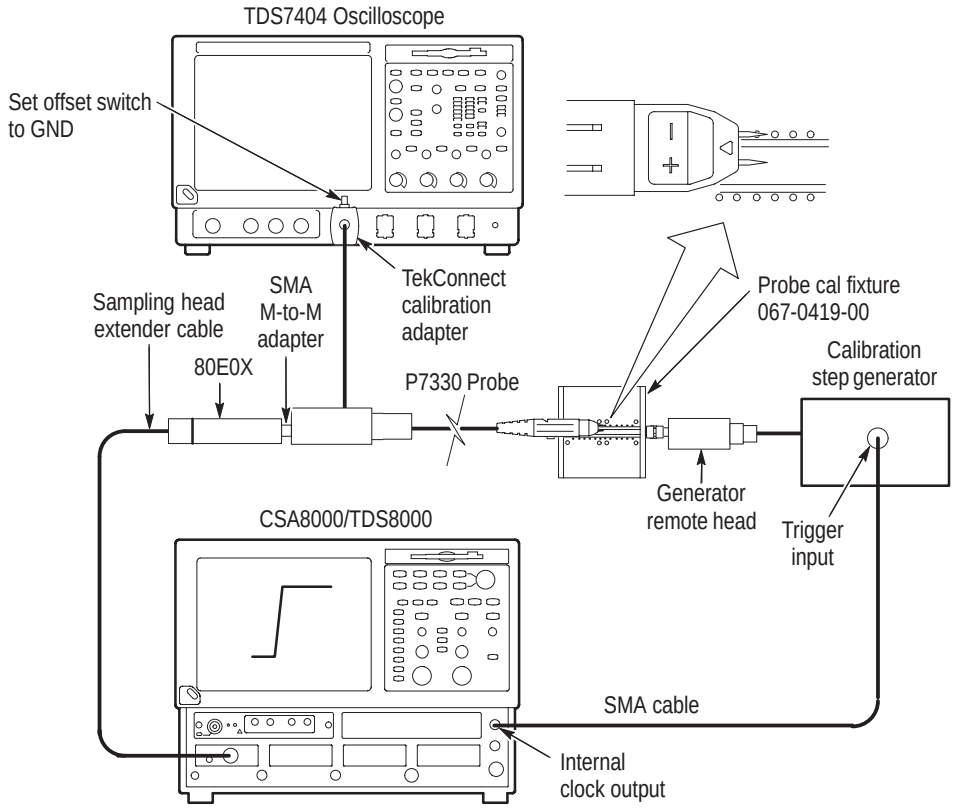


Figure 9: Test system rise time setup with probe

12. Set the step generator control switch to on.

13. On the TDS8000, expand the horizontal scale to help locate the step edge in step 14, then adjust horizontal range to 500 ps/div while maintaining the edge view. For a more stable measurement display, turn averaging on.

14. Using the probe positioner, probe the DM test points on the probe calibration fixture. Compare your display to Figure 10 on page 15 to verify that you have a valid connection with both pins.

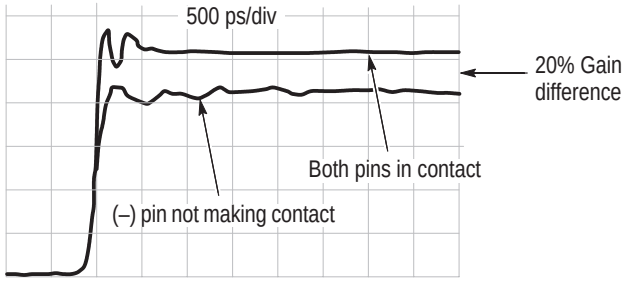


Figure 10: Verifying both probe pins are contacting the DM test points

15. Adjust the oscilloscope vertical scale to 10 mV/div, averaging on.

16. Adjust the oscilloscope horizontal positioning to place the rising edge of the signal so that it crosses the second vertical and center horizontal graticule lines.

17. Use the oscilloscope measurement capability to display rise time. Rise time is determined from the 10% and 90% amplitude points on the waveform. Record the rise time as t_{s+p}.

18. Calculate the probe rise time using the following formula:

$$t_p = \sqrt{t_{(s+p)}{}^2 - t_s{}^2}$$

19. Record the calculated probe rise time on the test record.

Test record

Probe Model: _____

Serial Number: _____

Certificate Number: _____

Temperature: _____

RH %: _____

Date of Calibration: _____

Technician: _____

Performance test	Mini-mum	Incom-ing	Outgo-ing	Maxi-mum
Output offset voltage	– 10 mV	_____	_____	+ 10 mV
DC gain accuracy	– 2 %	_____	_____	+ 2 %
Rise time	N/A	_____	_____	≤140 ps

Adjustment Procedures

These instructions are for personnel who are familiar with servicing the product. If you need further details for disassembling or reassembling the product, refer to the appropriate product manual. Contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service for installation assistance.

CAUTION. *To prevent static discharge damage, service the product only in a static-free environment. Observe standard handling precautions for static-sensitive devices when servicing the probe. Always wear a grounded wrist strap, grounded foot strap, and static resistant apparel when servicing the probe.*

Equipment Setup

Use this procedure to set up the equipment to adjust the probe.

1. Power on the oscilloscope, and enable the channel you intend to use.
2. Connect the probe calibration adapter to the oscilloscope.
3. Connect the probe to the probe calibration adapter.
4. Verify that the Volts/div readout on the oscilloscope channel displays ## (the oscilloscope recognizes the probe through the adapter).
5. Set the multimeters to read DC volts.
6. Allow 30 minutes for the equipment to warm up.
7. While the equipment is warming, verify that the application has been loaded onto the oscilloscope:
   a. Minimize the scope application window by going to File→Minimize.
   b. Go to: Start→Programs→Tektronix→TekConnect Adjust
   c. If the application is not loaded on the oscilloscope, get the application:

      Retreive the application CD that came with the oscilloscope, insert the CD in the drive, select Start→Run, and then enter **D:\setup.exe**

      Or, download the application from the Tektronix website at:

      www.tektronix.com/Software and Drivers/Accessories
8. When the application starts, the display appears as shown in Figure 11.

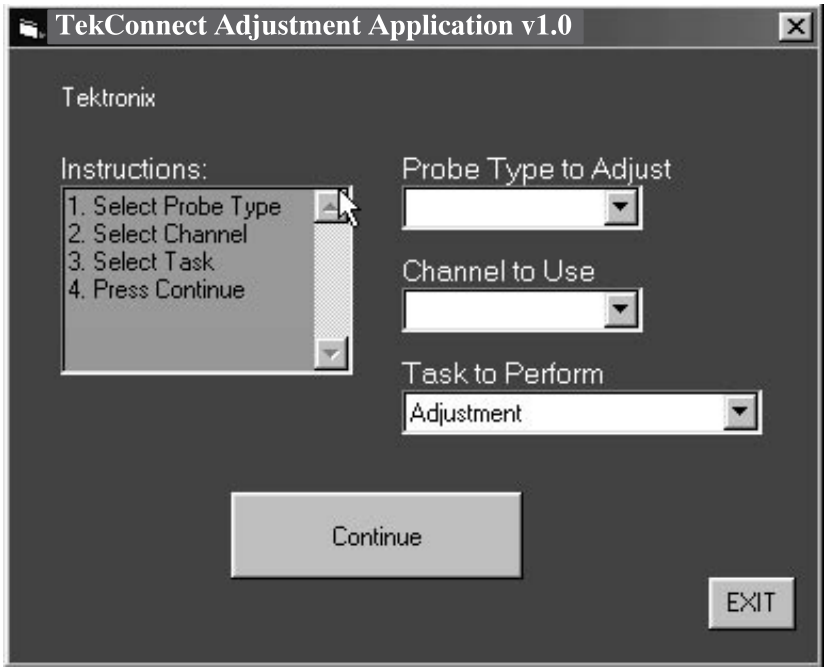


Figure 11: TekConnect probe adjustment application

Application Setup

1. Make the following selections:
   a. Select **P7330** in the Probe Type to Adjust list.
   b. In the Channel to Use list, select the oscilloscope channel that the adapter is connected to.
   c. Select **Adjustment** in the Task to Perform list.
2. Click Continue.
3. The P7330 Probe Adjustments Dialog Box appears. See Figure 13 on page 20.

***NOTE**. An error message appears if one of the following conditions exists:*

- *A probe is not connected to the adapter.*
- *A probe model other than a* P7330 *is connected to the adapter.*
- *The* P7330 *connected to the adapter is defective (unable to properly communicate with the adapter).*

If an error message appears, click OK, correct the condition that caused the error message, and then click Continue.

4. Proceed to the *Offset Zero* procedure.

***NOTE**. To avoid corrupted test results, do not disconnect the probe under test or the probe calibration adapter until you have completed the service procedures. If the probe or adapter are disconnected before completing the procedures, you must reconnect the probe and adapter, and exit and restart the application.*

Offset Zero

Use this procedure to adjust the probe offset zero.

1. Connect the test equipment as shown in Figure 12.

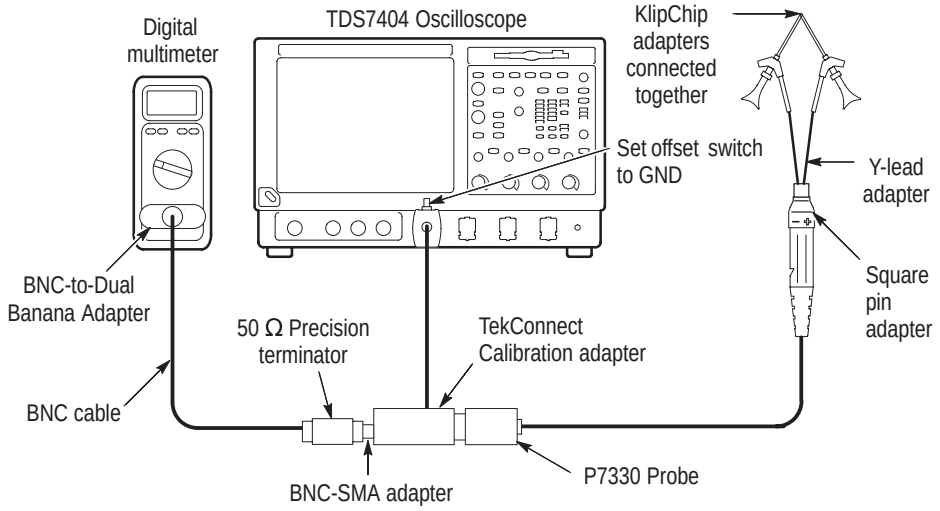


Figure 12: Setup for offset zero

2. Set the offset switch on the calibration adapter to **GND**.
3. Click Offset Zero in the application window. See Figure 13 on page 20.

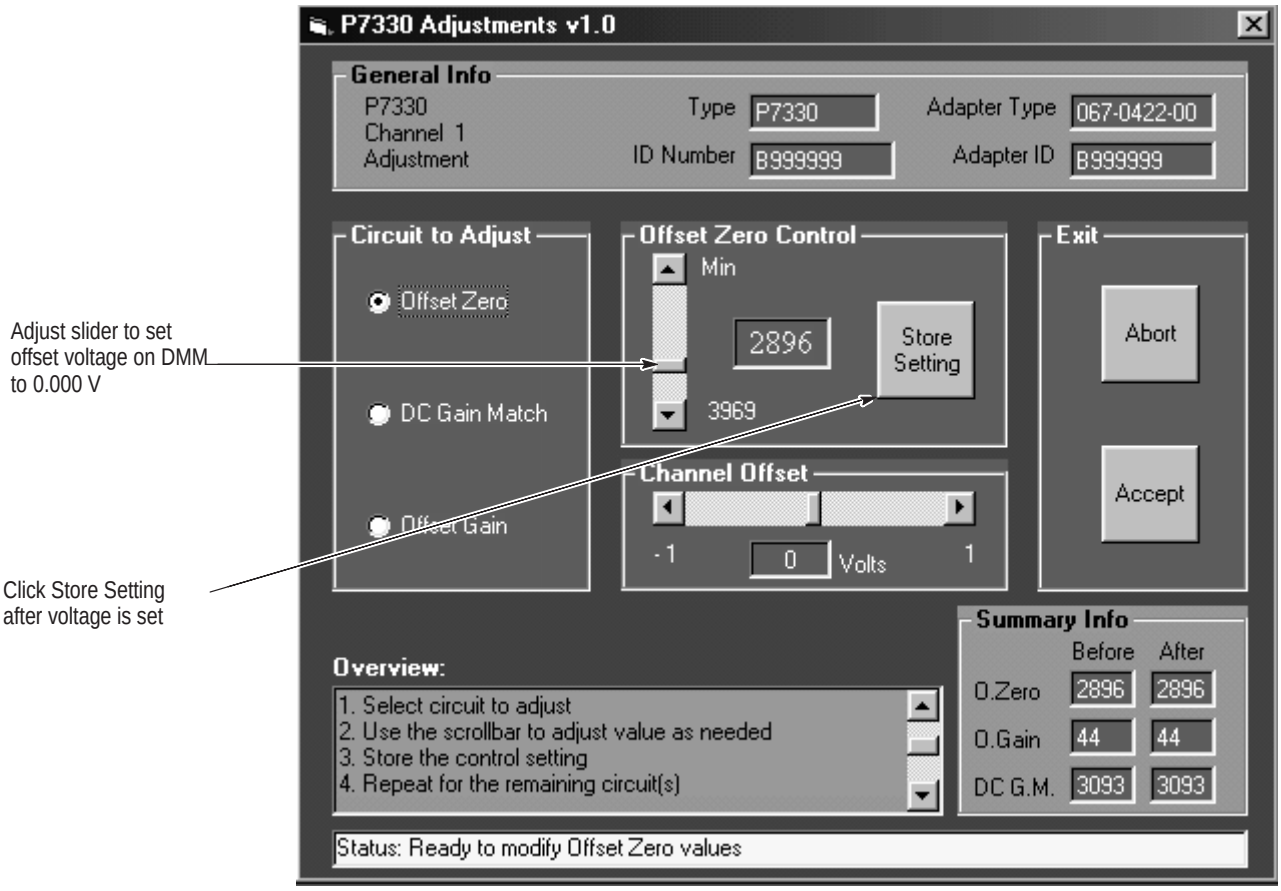


Figure 13: Offset Zero Control in the P7330 Adjustments window

4. Set the offset zero voltage on the DMM to 0.000 V by adjusting the Offset Zero Control. The index value in the Offset Zero Control varies from 0 to 3969, and corresponds to approximately ±20 mV of offset voltage range.

   Use one of the following methods to make the adjustment:

   - Use your finger or the mouse to drag the on-screen slider up or down.
   - Click or touch the up/down arrow keys above and below the slider. Each click adjusts the offset voltage by about 10 μV.
   - To increment by ten clicks or about 100 μV, click in the bar above or below the slider.

5. When the offset zero voltage displayed on the voltmeter is 0.000 V ±0.001 V, click Store Setting to save the offset zero voltage level.

In the Summary Info box, the AFTER field updates with the control value from step 5. This is a temporary value until Accept is selected later, after all adjustments have been made.

***NOTE**. In the Summary Info box, the* After *field updates with the control value from step 5. This is a temporary value until Accept is selected later, after all adjustments have been made.*

If you select Accept *now, the application requests confirmation: If you click* Yes, *the application exits; if you click* No, *you are able to make further adjustments. You must complete all adjustments before selecting* Accept.

6. Proceed to the *DC CMRR* procedure**.**

DC CMRR

Use this procedure to adjust the DC common-mode rejection ratio. Due to the interaction of the Offset Zero and DC CMRR adjustments, it may be necessary to repeat the procedure to optimize the adjustments.

1. Click DC Gain Match in the application window. See Figure 14.

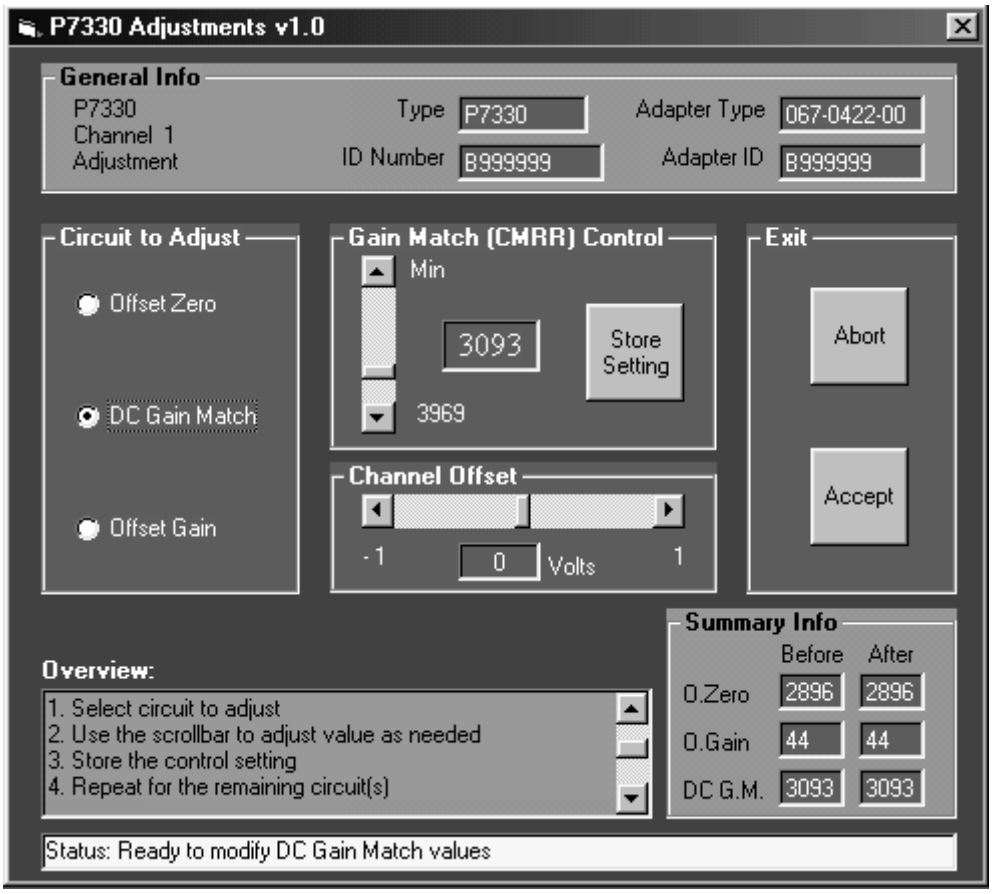


Figure 14: DC Gain Match window

2. Connect the test equipment as shown in Figure 15.
3. Set the offset switch on the calibration adapter to **GND**.

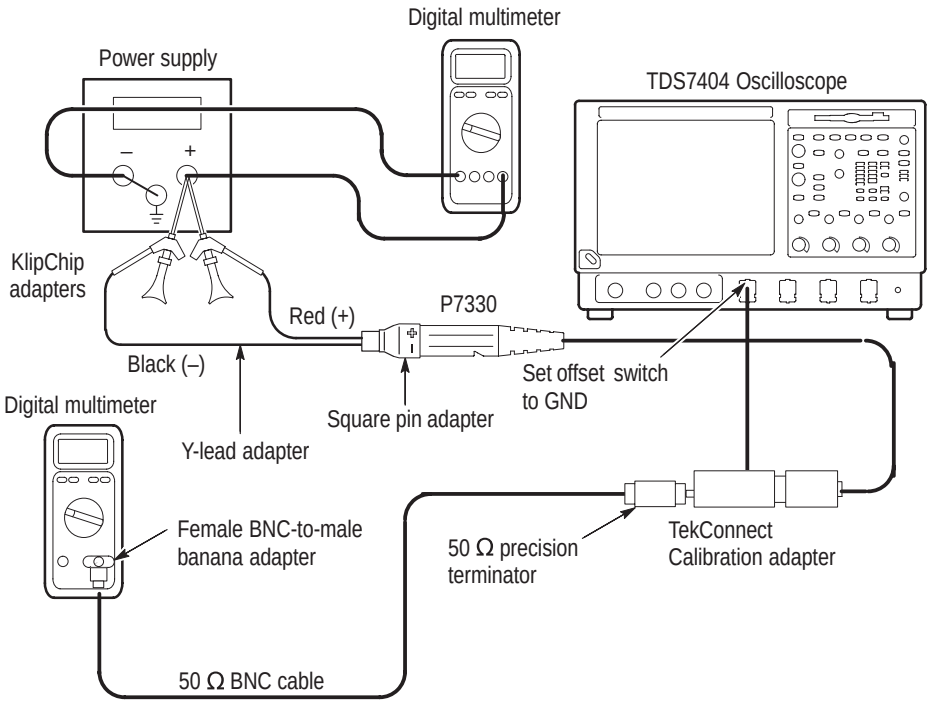


Figure 15: DC CMRR setup

4. Set the input voltage on the DC source to 3.0 V, ±10 mV. Record the actual voltage as $V_{in}1$.
5. Set the Gain Match (CMRR) Control using one of the following methods:
   - Use your finger or the mouse to drag the on-screen slider up or down.
   - Click or touch the up/down arrow keys above and below the slider. Each click adjusts the offset voltage by about 10 μV.
   - To increment by ten clicks or about 100 μV, click in the bar above or below the slider.
6. Adjust the Gain Match control until the value displayed on the voltmeter is 0.0000 V, ±0.0001 V. Click Store Setting to save the offset gain level.
7. Record the output voltage as $V_{out}1$.
8. Set the input voltage on the DC source to approximately –3.0 V. Record the actual voltage as $V_{in}2$.

9. Record the output voltage as $V_{out}2$.

10. Calculate the common-mode gain (A_{CM}) as follows:

$$A_{CM} = \frac{Vout1 - Vout2}{Vin1 - Vin2}$$

You must include the voltage polarities in this calculation. For example, the value for ($V_{in}1 - V_{in}2$) should be about 6 V.

11. Calculate the CMRR in dB as follows:

$$20\ log = \frac{0.2}{|A_{CM}|}$$

The calculated CMRR should be greater than 60 dB.

12. Reverify that the offset is 0 V, ±3.0 mV:

Repeat steps 1 through 3 in the *Output Offset Voltage* Performance Verification procedure on page 10.

If the offset voltage magnitude is greater than 3.0 mV, or if the CMRR is less than 60 dB, disconnect the probe from the test circuit. Repeat the adjustment in the *Offset Zero* procedure on page 19 to compensate for the adjustment interaction.

In the Summary Info box, the AFTER field updates with the control value from step 8. This is a temporary value until Accept is selected later, after all adjustments have been made.

13. Click Store Setting to store the gain level you set in step 6.

14. Proceed to the *Offset Gain* procedure.

Offset Gain

Use this procedure to adjust the probe offset gain.

1. Connect the test equipment as shown in Figure 16.

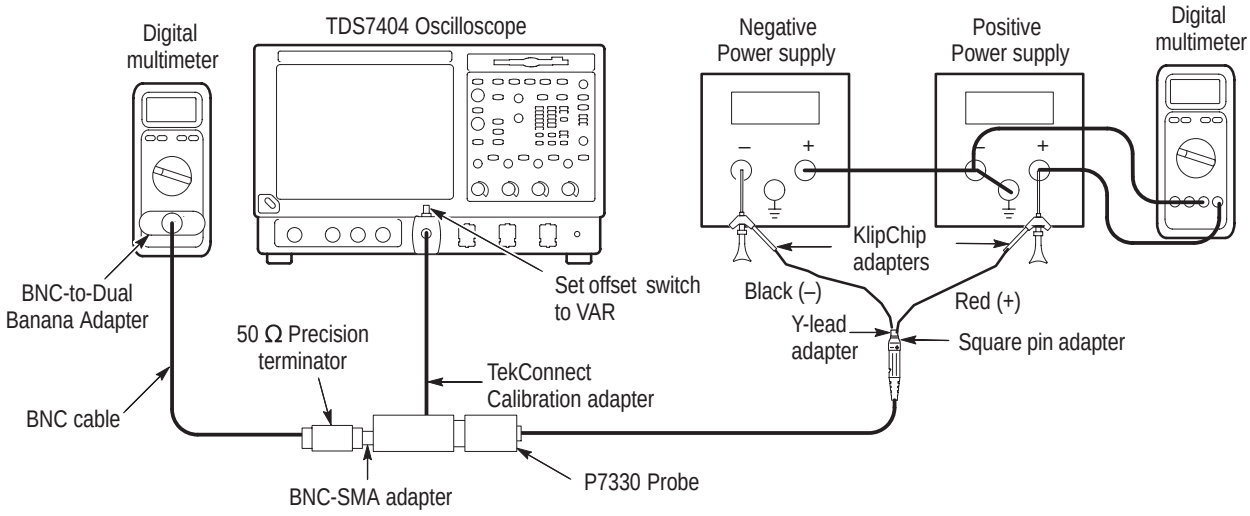


Figure 16: Setup for offset gain

2. Set the offset switch on the calibration adapter to **VAR**.
3. Set the positive DC power supply to +0.35 V, and record the actual voltage as $V_{in}1$.
4. Set the negative DC power supply to –0.35 V, and record the actual voltage as $V_{in}2$.
5. Click **OFFSET GAIN** in the application window. See Figure 17 on page 25.
6. Set the Channel Offset Control to –0.700 volts, using one of the following methods:
   - Use your finger or the mouse to drag the on-screen slider left or right.
   - Click or touch the left or right arrow keys to the left and right of the slider.
     Each click adjusts the offset control voltage by about 1.0 mV.
   - To increment by ten clicks or about 10 mV, click in the bar to the left and right of the slider.

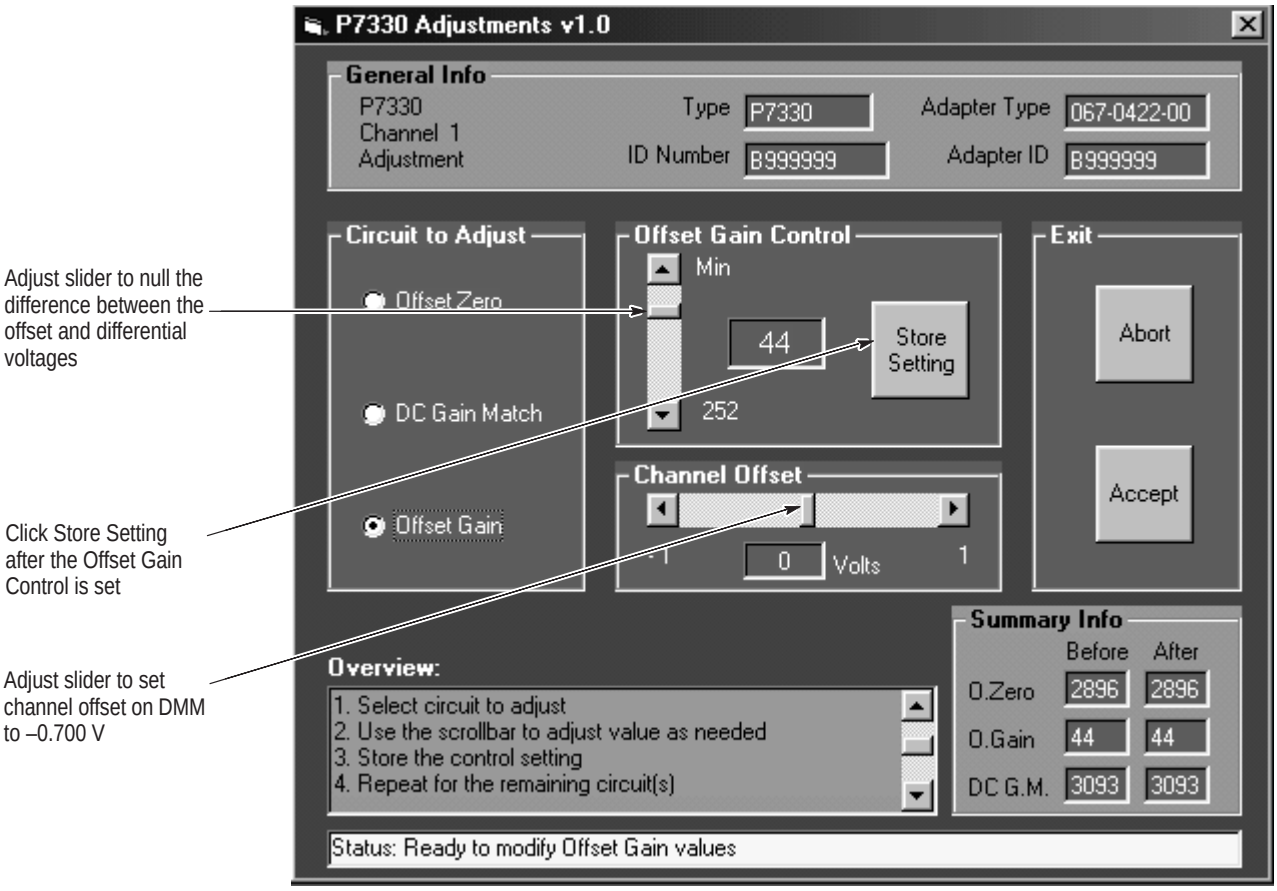


Figure 17: Offset Gain window

7. Use the offset gain control to null the difference between the probe differential voltage you set in steps 3 and 4, and the Channel Offset voltage you set in step 6, using one of the following methods:

- Use your finger or the mouse to drag the on-screen slider up or down.
- Click or touch the up/down arrow keys above and below the slider. Each click adjusts the offset voltage by about 0.5 mV.
- To increment by ten clicks or about 5 mV, click in the bar above or below the slider.

8. When the offset gain displayed on the voltmeter is ±1 mV, click Store Setting to update the AFTER field with the new offset gain level.

In the Summary Info box, the AFTER field updates with the control value from step 8. This is a temporary value until Accept is selected.

9. Click Accept to save all the values that you set in these procedures.

10. Click Yes to update the contents.

This completes the adjustments to the probe.

Verify Operation

Do the performance verification procedures for the offset zero and DC attenuation specifications.

End of document