

8 Adjustment Procedure

INTRODUCTION

You can use this procedure to adjust the HFP1000 probe to meet the warranted specifications. This procedure should only be performed if the probe fails to meet the Performance verification tests for Output Zero.

Gain which affects LF attenuation accuracy cannot be adjusted during routine calibration. Probes which fail LF attenuation accuracy during performance verification must be returned to the factory for rework.

If the probe cannot be adjusted to meet the Performance verification limits, repair may be necessary.

To assure probe accuracy, check the calibration of the HFP1000 every 1000 hours or once a year if used infrequently. Before calibration, thoroughly clean and inspect the probe as outlined in the Care and Maintenance section.

To assure the probe will meet the published specifications over the entire temperature range, adjustment must be performed in a controlled ambient environment with temperature of $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$.



Caution

The adjustment procedure will require removal of the probe control circuitry cover. This cover is part of the ESD protection system of the HFP1000. To protect the probe, you should perform the entire procedure on a static dissipating work surface. Wear an antistatic wrist strap and follow standard static control procedures.

TEST EQUIPMENT REQUIRED

Table 8-1 lists the test equipment and accessories (or their equivalents) that are required for complete calibration of the HFP1000 Probe. Specifications given for the test equipment are the minimum necessary for accurate calibration. All test equipment is assumed to be correctly calibrated and operating within the specification listed. Detailed operating instructions for the test equip-

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ment are not given in this procedure. refer to the test equipment manual if more information is needed

If alternate test equipment is substituted, control settings or calibration equipment setups may need to be altered.

Table 8-1. List of Required Equipment

Description	Minimum Requirements	Test Equipment Examples
Digital Oscilloscope	ProBus interface	LeCroy LT344 or LeCroy LC584
Digital Multimeter (DMM) with test probe leads	4.5 digit DC: 0.1% Accuracy AC: 0.1% accuracy	Agilent Technologies 34401A or Fluke 8842A-09
BNC Coaxial Cable (2 ea.)	Male to Male, 50 Ω , 36" Cable	Pomona 2249-C-36 or Pomona 5697-36
Calibration Fixture	ProBus Extender Cable	LeCroy PROBUS-CF01
Terminator, Precision, BNC	50 $\Omega \pm 0.05\%$	LeCroy TERM-CF01

PRELIMINARY PROCEDURE

1. Remove the two screws that secure the plastic cover on the cable end of the ProBus interface housing.
2. Gently pull on the probe cable to slide the circuit board assembly from the metal housing.
3. Connect the HFP1000 probe to the female end of the ProBus extension cable, being careful to line up all six pins of the probe connector. Connect the male end of the ProBus extension cable to channel 1 of the oscilloscope.
4. Apply power to the oscilloscope and test equipment.
5. Allow at least 30 minutes warm-up time for the HFP1000 and test equipment before starting the calibration procedure.

Adjustment Procedure

PROCEDURE

A. Adjust Output Zero

1. Connect one end of a BNC cable to the probe end of the Pro-Bus extension cable. Connect the Precision 50 Ω Terminator to the other end of the BNC cable.
2. Connect the banana plugs of the precision 50 Ω terminator to the input of the DMM. Make sure the plug corresponding to the BNC shield (marked 'Ground') is connected to the **LO** or **COMMON** input of the DMM. Refer to figure 8-1 for setup information.

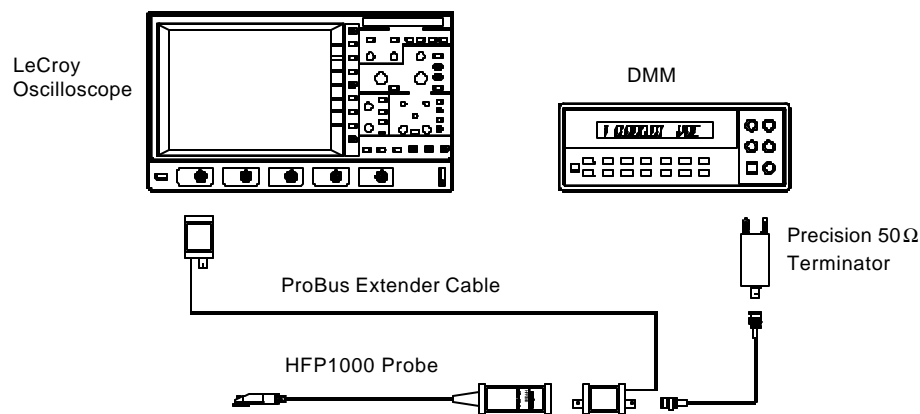


Figure 8-1 Output Zero Voltage Adjustment Setup

3. Select the channel to which the probe and ProBus extender is connected. Set **OFFSET** on the oscilloscope to zero as indicated on the on-screen display.
4. Set the DMM to read DC Volt on the most sensitive range.
5. Verify that the probe inputs are not connected to any signal.
6. Adjust **OUTPUT ZERO** on the board until the DMM reads 0 V $\pm 100 \mu\text{V}$. Refer to figure 8-2 for adjustment location.

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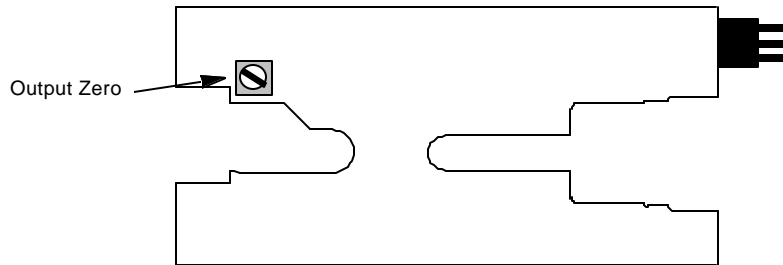


Figure 8-2 Adjustment Locations

7. Disconnect the probe from the ProBus extender and re-install the circuit board into the probe case, being careful to align the ProBus interface connector with the opening on the other end of the probe.

B. Verify Calibration

Repeat the Performance Verification procedure to ensure compliance with the warranted specifications.

Apply a calibration sticker, if required, in accordance with your quality control procedures.

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