

## 5 Performance Verification

This procedure can be used to verify the warranted characteristics of the CP150 Current Probe.

The recommended calibration interval for the model CP150 Current Probe is one year. The complete performance verification procedure should be performed as the first step of annual calibration. Test results can be recorded on a photocopy of the Test Record provided at the end of the manual.

Performance verification can be completed without removing the probe covers or exposing the user to hazardous voltages. Adjustment should only be attempted if a parameter measured in the Performance Verification Procedure is outside the specification limits.

Adjustment should only be performed by qualified personnel.

### TEST EQUIPMENT REQUIRED

The following table lists the test equipment and accessories (or their equivalents) which are required for performance verification of the CP150 Current Probe.

Because the input and output connector types may vary on different brands and models of test instruments, additional adapters or cables may be required.

**Table 5-1. List of Required Equipment**

Description	Minimum Requirements	Test Equipment Examples
Wide Band Oscilloscope	ProBus interface equipped Software version 8.6.0 or higher	LeCroy LT322
Digital Multimeter (2 required)	DC: 0.1% Accuracy 5½ digit resolution	Agilent Technologies 34401A or Fluke 8842A-09
Function Generator	50 Hz sine wave output. 3.55 Vrms into 50Ω	Agilent Technologies 33120A or Stanford Research Model DS340
Calibration Fixture, 500 Turn Loop	500 Turn loop in series with 0.5Ω ±0.1% resistor with sense terminals.	LeCroy CP150-CF02

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Description	Minimum Requirements	Test Equipment Examples
Calibration Fixture	ProBus Extender Cable	LeCroy PROBUS-CF01
Banana Plug Adapter	Female BNC to Dual Banana Plug	Pomona 1269
Patch Cables (4 required)	Male Banana to Male Banana, 12"	Pomona B-12-0 (black), B-12-2 (red)
BNC Adapter	BNC Male to Dual Banana Jack	Pomona 1296

### PRELIMINARY PROCEDURE

1. Connect the CP150 to the channel 1 input of the oscilloscope and completely close the probe slider.
2. Turn the oscilloscope on and allow at least 30 minutes warm-up time for the CP150 and test equipment before performing the Verification Procedure.
3. Turn on the other test equipment and allow these to warm up for the time recommended by the manufacturer.
4. While the instruments are reaching operating temperature, make a photocopy of the Performance Verification Test Record (located in Appendix A), and fill in the necessary data.

### FUNCTIONAL CHECK

The functional check will verify the basic operation of the probe functions.

It is recommended the Functional Check be performed prior to the Performance Verification Procedure.

1. Select Channel 1 and enter the **Coupling** menu.
2. Verify that **Probe sensed (CP150)** is displayed on the right hand menu.
3. Degauss the probe by pressing the **DEGAUSS** button, (located on the coupling menu), twice.
4. Verify that "Degaussing CP150 probe...." is displayed at the top of the screen and no error message remains displayed.

### PERFORMANCE VERIFICATION PROCEDURE

The warranted characteristics of the CP150 Current Probe are valid at any temperature within the Environmental Characteristics

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listed in the Specifications. However, some of the other test equipment used to verify the performance may have environmental limitations required to meet the accuracy needed for the procedure. Make sure that the ambient conditions meet the requirements of all the test instruments used in this procedure.

### Note

*The correct operation of the CP150 controls requires software version 8.6.0 or higher. The software version in the test oscilloscope can be verified by pushing **SCOPE STATUS**, then selecting the **System** menu option. Contact your local LeCroy representative if the software in your oscilloscope requires updating.*

### CHECK DC ACCURACY

1. Set the Function generator to 50 Hz sine wave. Output voltage at 1.7 Vrms with 50Ω output.

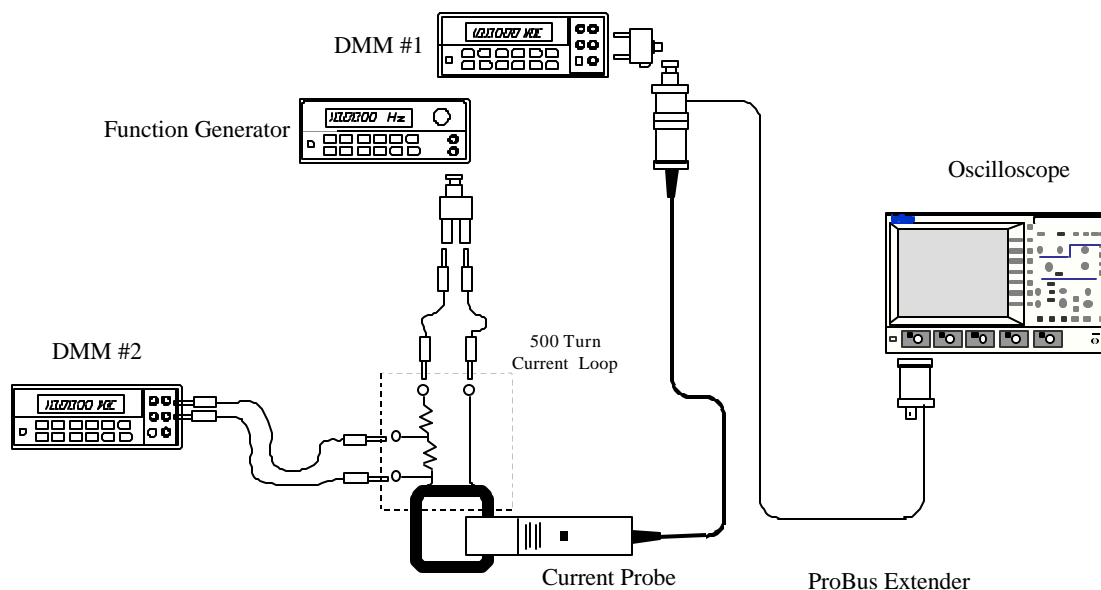


Figure 5-1. DC Accuracy Test Set Up

2. Remove the CP150 from the oscilloscope and reconnect using the ProBus extension cable. Connect the BNC male connector of the ProBus extension to DMM #1 using a BNC Female to Dual Banana adapter.

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3. Using the banana patch cords and the BNC to Dual Banana Plug Adapter, connect the 'V Source' and 'V Return' terminals of the 50 Turn Calibration Loop to the output of the Function Generator. (Figure 5-1)
4. Connect the Current Sense terminals of the 500 Turn Calibration Loop to the voltage inputs of DMM #2.
5. Set both DMMs to measure AC Volt.
6. With the CP150 removed from any signal and the slider returned to the LOCKED position, degauss the probe by pressing the **DEGAUSS** button (located on the coupling menu) twice.
7. Open the CP150 slider and position the probe input around the 500 Turn loop. Close and LOCK the slider.
8. Adjust the Function generator voltage until the voltage measured at the 'Current Sense' terminals (DMM #2) reads  $10 \text{ mV} \pm 0.01 \text{ mV}$ . (This corresponds to 10 A at the probe head).
9. Record the voltage measured by DMM #2 on the Test Record.
10. Verify that the measured voltage is between 99 mV and 101 mVolt.

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