

2400 and 2182A Delta Mode set up

Step 1 Connect the Delta measurement test circuit.

Connect the SourceMeter and Model 2182 to the DUT. Also connect a trigger link cable (Model 8501) from the Model 2182 to the SourceMeter.

NOTE

This procedure assumes that the Model 2182 is using the factory default Trigger Link line configuration; Line 1 is VMC (output), Line 2 is EXT TRIG (input).

Step 2 Return the SourceMeter to BENCH defaults.

BENCH defaults are restored from the Main Menu, which is accessed by pressing MENU:

MAIN MENU

□

SAVESETUP

□

GLOBAL

→

RESET

→

BENCH

Step 3 Configure the trigger model of the SourceMeter.

The menu structure to configure triggers is accessed by pressing CONFIG and then TRIG.

Configure the trigger model as follows:

Arm-Layer:

Arm-In Event IMMEDIATE

Arm-Out TLink Line #3

Arm-Out Events OFF

Arm Count INFINITE

Trig-Layer:

Trigger-In:

Trigger-In Source TRIGGER LINK

Trig-In TLink Line #1

Event Detect Bypass NEVER

Trigger In Events SOURCE=ON DELAY=OFF MEAS=OFF

Trigger-Out:

Trigger-Out TLink Line #2

Trigger Out Events SOURCE=ON DELAY=OFF MEAS=OFF

Delay 000.0000 s

Trig-Count 0002 (trigger count must equal the number of sweep points)

Step 4 Set up the SourceMeter to source current and measure voltage.

A. On the SourceMeter, select Source I and Measure V.

B. Select an appropriate current source range. For example, if your current reversal values are going to $\pm 1\text{mA}$, select the 1mA source range.

C. Press SPEED and select FAST. SourceMeter measurements are not used in this test, but it must run as fast as possible to avoid synchronization problems with the Model 2182.

Step 5 Configure the SourceMeter to perform a 2-point custom sweep.

A. The menu to configure a sweep is accessed by pressing CONFIG and then SWEEP. From the menu, select TYPE and then select CUSTOM.

Set the #-POINTS to two, and set ADJUST-POINTS (P0000 and P0001) to the

positive and negative current source values. For example, if the test requires 1mA, set P0000 to +1mA and set P0001 to -1mA.

B. Also from the sweep configuration menu, specify the number of 2-point sweeps to perform:

Selecting INFINITE allows the SourceMeter to continuously source the current reversal sweep. Select FINITE if you wish to perform a specific number of 2-point sweeps.

Step 6 Return the Model 2182 to FACTory defaults.

Return the nanovoltmeter to its factory default conditions, by pressing RESTR and selecting FACT.

Step 7 Configure the Model 2182 for Delta measurements.

A. Press RATE to select 1 PLC (MED annunciator on) or 5 PLC (SLOW annunciator on).

B. Enable Delta measurements by pressing SHIFT and then V1-V2.

NOTE

For fast Delta measurements (2x speed), disable Front Autozero (SHIFT > CONFIG > FRONT AUTOZERO N).

C. Press EX TRIG to place the instrument in the external trigger mode. This will halt measurements.

D. If a longer settling time is required before performing each measurement, set a manual delay from the Model 2182. Press SHIFT and then DELAY to select and set delay.

NOTE

Do not set a delay on the SourceMeter, as this may adversely affect trigger synchronization between the SourceMeter and the Model 2182.

Step 8 Turn on the SourceMeter output and reset the trigger model.

A. Turn on the output by pressing the OUTPUT ON/OFF key (“ARM” annunciator turns on).

B. Reset the trigger model as follows:

1. Press CONFIG and then TRIG to access the trigger configuration menu.

2. Select HALT to place the SourceMeter in the idle state (“ARM” annunciator turns off).

3. Press EXIT to return to the normal display.

Step 9 Set up the Model 2182 to store readings in the buffer (optional).

On the Model 2182, press STORE and set the number of Delta readings to store in the buffer. Press ENTER to enable the buffer.

Step 10 Start the sweep from the SourceMeter.

A. To arm the sweep, press SWEEP.

B. To start the sweep, press TRIG.

At the end of each 2-point sweep, a Delta reading will be calculated and displayed, and stored in the buffer if it is enabled.

NOTES

- *A sweep in progress can be aborted by pressing EXIT on the SourceMeter.*
- *If you are done sweeping, turn off the source by pressing the ON/OFF OUTPUT key on the SourceMeter. Turning the source off prevents heat from building up in the DUT.*
- *Delta readings stored in the buffer can be accessed by pressing RECALL on the Model 2182.*

Step 11 Repeating the sweep.

A. On the Model 2182, press EX TRIG twice to disable and then re-enable external triggering. The “TRIG” annunciator indicates that the Model 2182 is in the external triggering mode.

B. Repeat Steps 8, 9, and 10. However, if the SourceMeter output is already on, skip Step 8A.