

# Solartron 1250

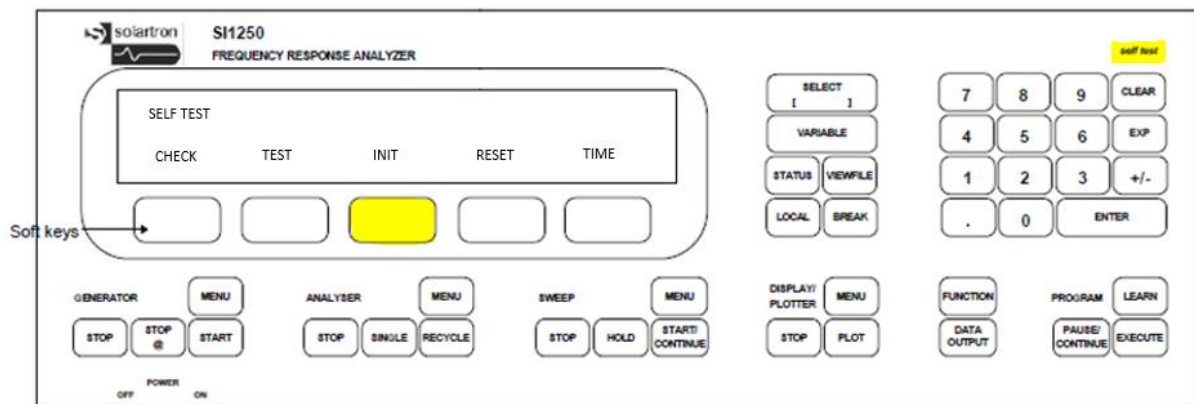
PROCEDURE FOR A FUNCTIONAL CHECK

[HTTP://WWW.AMETEKSI.COM/SUPPORT-CENTER/SOLARTRON-ANALYTICAL/USER-TESTS](http://www.ameteksi.com/support-center/solartron-analytical/user-tests)

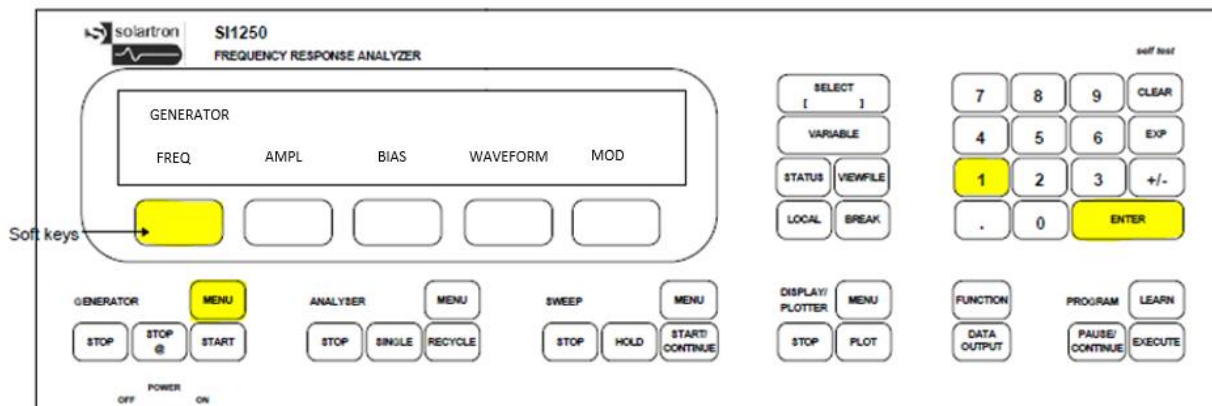
**NOTE:** Before beginning the test, if working with a unit that has both front and rear connections, please ensure that the cables are connected to the rear connections and that rear inputs are selected within the FRA. Please check this prior to steps #4 & #12 by selecting “ANALYZER MENU”, followed by “ANALYZER 1” (before step 4, analyzer 2 before step 12), then “INPUT”, “REAR”.

This is a basic test procedure used to ensure that the generator and input channels are working on the FRA in question. The following steps outline the procedure for performing a basic bench test on the Solartron Analytical 1250:

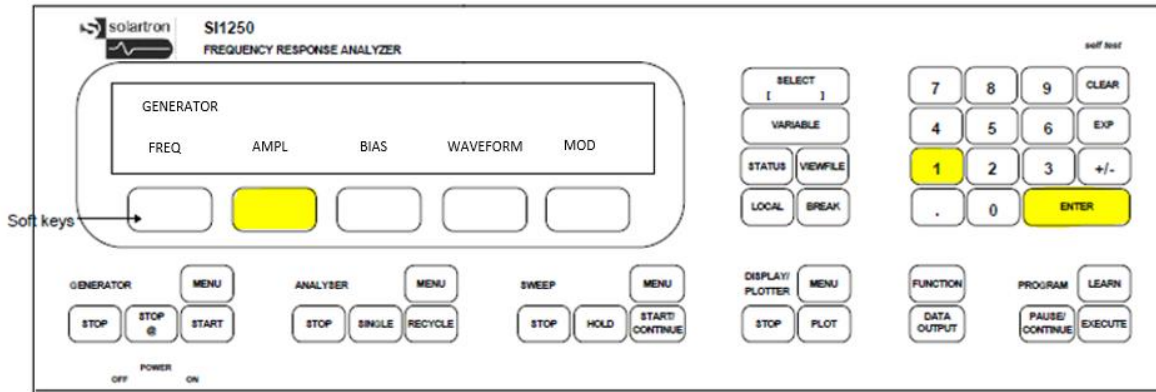
- Step 1: Press “SELF TEST” key, followed by “INIT”. Relays will click, and an “Initialized” message will appear on the display.



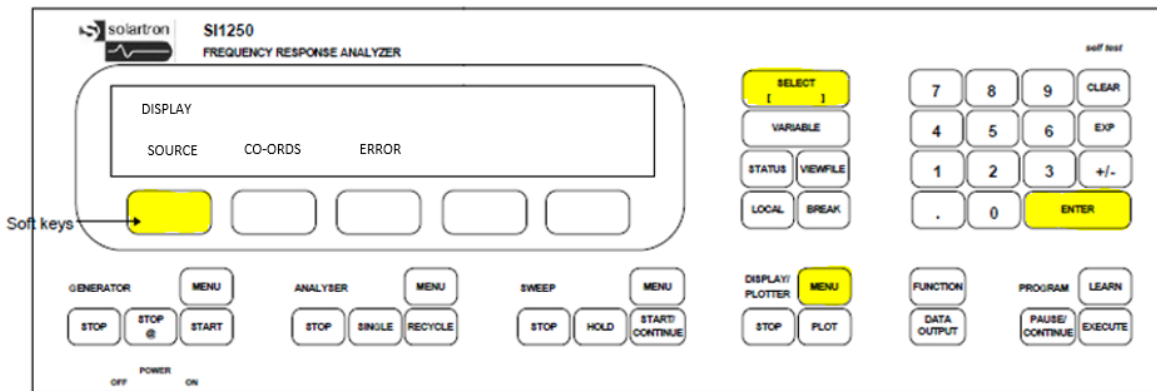
- Step 2: Press “GENERATOR MENU”, followed by “FREQ”, followed by “1”, followed by “ENTER” (sets frequency to 1Hz).



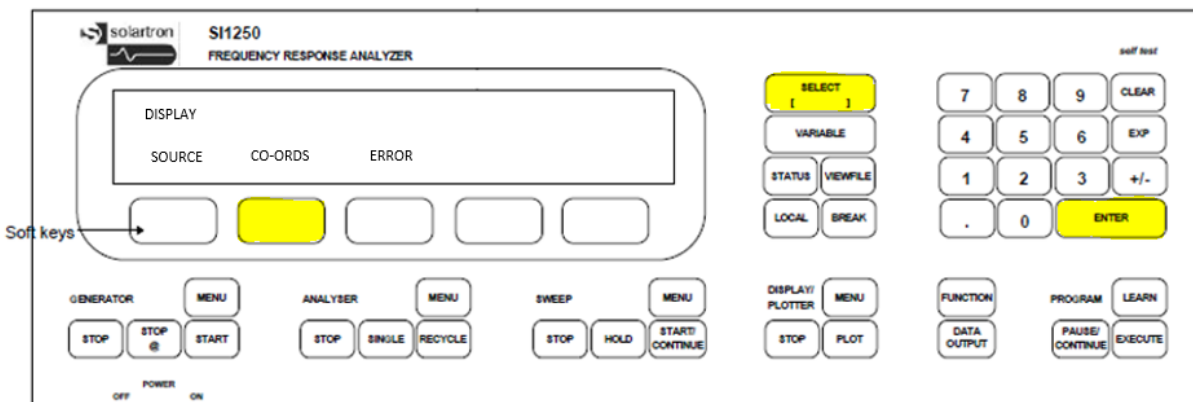
- Step 3: Press “AMPL”, followed by “1”, followed by “ENTER” (sets amplitude to 1Volt).



- Step 4: Press “DISPLAY/PLOTTER MENU”, followed by “SOURCE”, followed by “SELECT” until ch.1 is displayed, followed by “ENTER” (sets display to show analyzer 1 result).



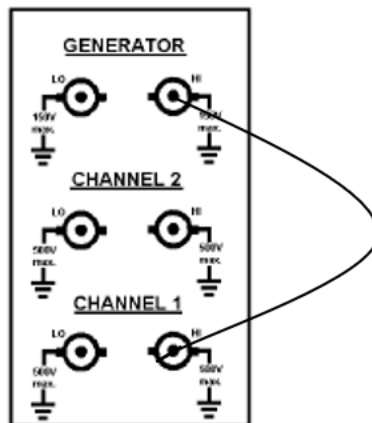
- Step 5: Press “CO-ORDS”, followed “SELECT” until R/theta is displayed, followed by “ENTER” (sets display to show R / theta).



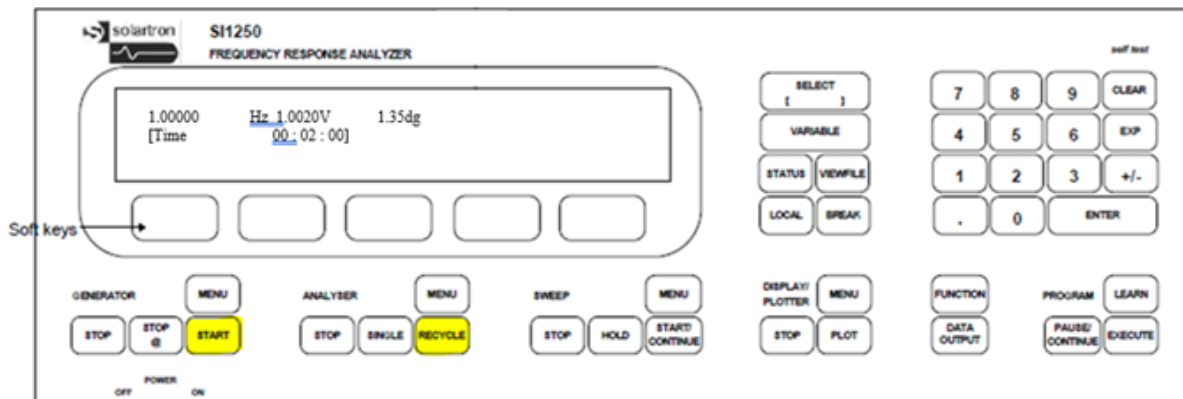
- Step 6: Place a BNC short circuit on GENERATOR LO. A similar model to the one shown below can be purchased at [http://www.newark.com/pomona/3839/bnc-dust-cap-brass/dp/77B2417?MER=bn\\_level5\\_4NP\\_LastViewed\\_1](http://www.newark.com/pomona/3839/bnc-dust-cap-brass/dp/77B2417?MER=bn_level5_4NP_LastViewed_1).



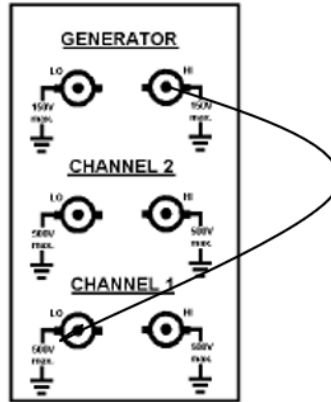
- Step 7: Link GENERATOR HI to input CHANNEL 1 HI on the back panel of the 1250 with bnc to bnc lead.



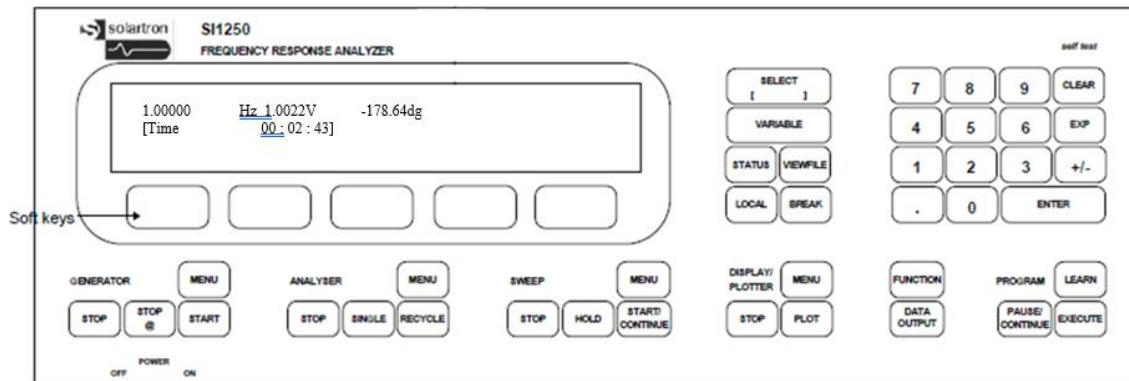
- Step 8: Press “GENERATOR START”, followed by “RECYCLE”.
- Step 9: Display should show a frequency of 1Hz @ approximately 1Volt (+/-0.4V) @ approximately 0 deg phase (+/-2 deg phase).



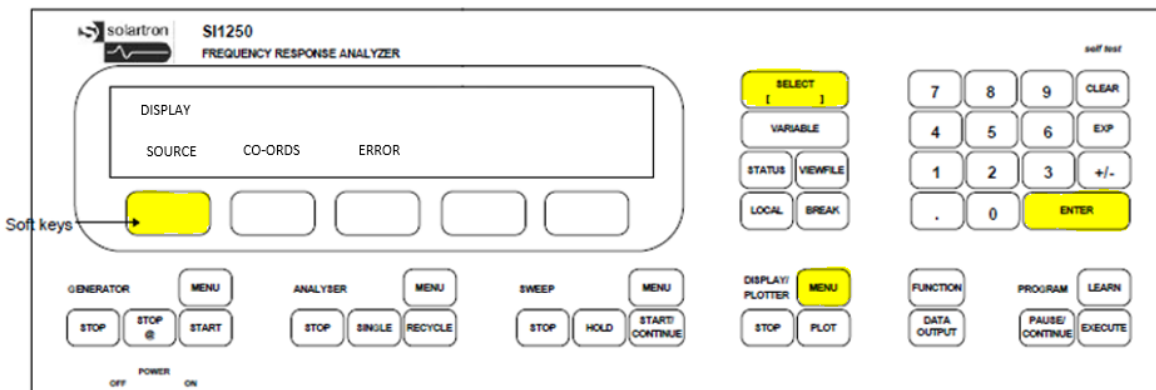
- Step 10: Link GENERATOR HI to CHANNEL 1 LO with bnc to bnc lead.



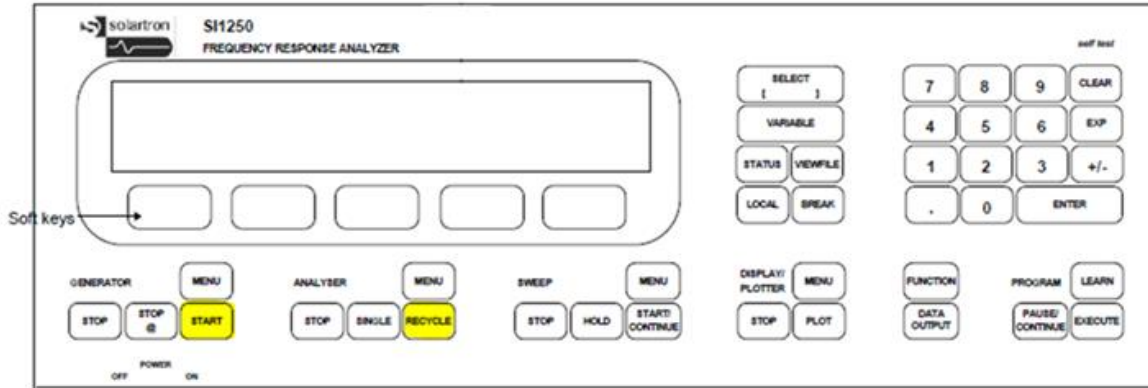
- Step 11: Display should show a frequency of 1Hz @ approximately 1Volt (+/-0.4V) @ approximately -180 deg phase (+/-2 deg phase).



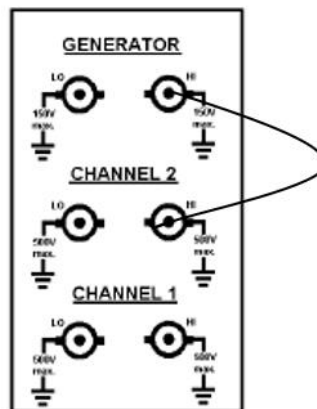
- Step 12: Press “Display/Plotter Menu” followed by “Source” followed by “Select” until ch. 2 is displayed, followed by enter (sets display to show analyzer 2 result).



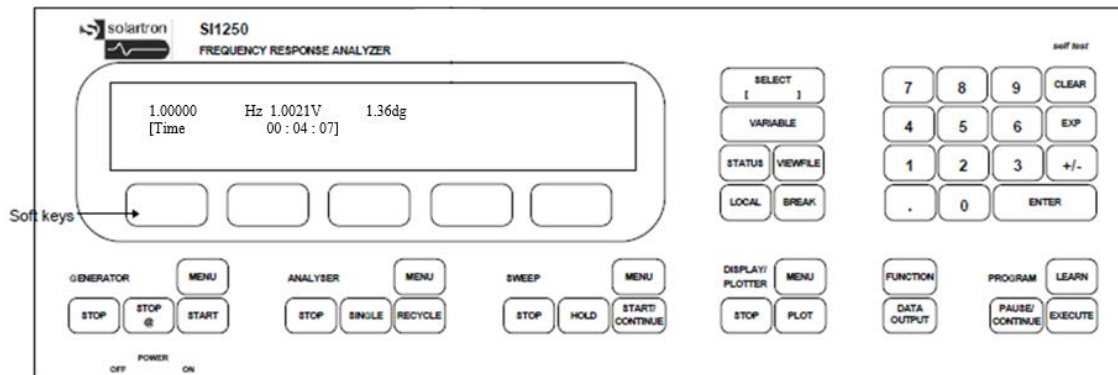
- Step 13: Press “GENERATOR START”, followed by “Recycle”.



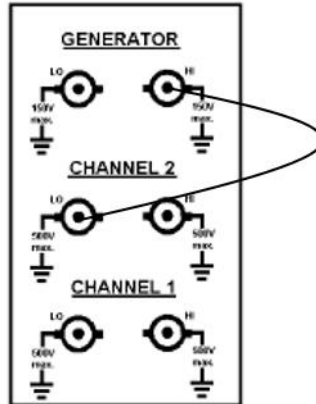
- Step 14: Link GENERATOR HI to CHANNEL 2 HI with bnc to bnc lead.



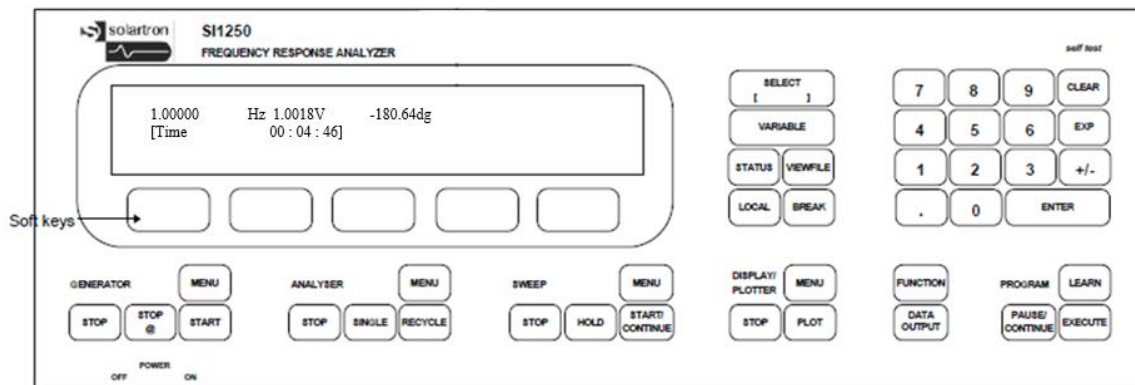
- Step 15: Display should show a frequency of 1Hz @ approximately 1 Volt (+/-0.4V) @ approximately 0 deg phase (+/-2 deg phase).



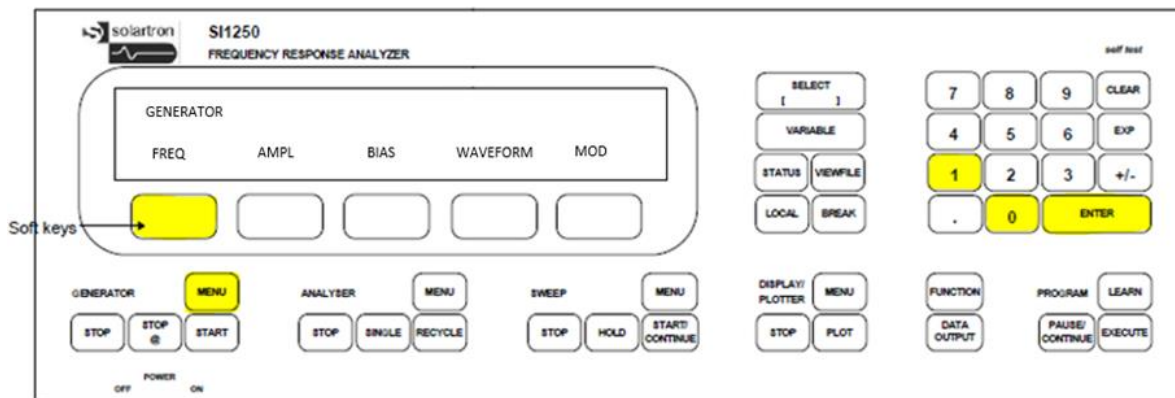
- Step 16: Link GENERATOR HI to CHANNEL 2 LO with bnc to bnc lead.



- Step 17: Display should show a frequency of 1Hz @approximately 1Volt (+/-0.4V) @ approximately -180 deg phase (+/-2 deg phase).



- Step 18: Set frequency to 10KHz- After pressing “GENERATOR MENU”, followed by “FREQ” in step 2, type in “10”. Then use the “SELECT” to change setting to KHz, and press “ENTER”. Resume from step 3 of the previously outlined test.



- Repeat the steps and check results as listed below:

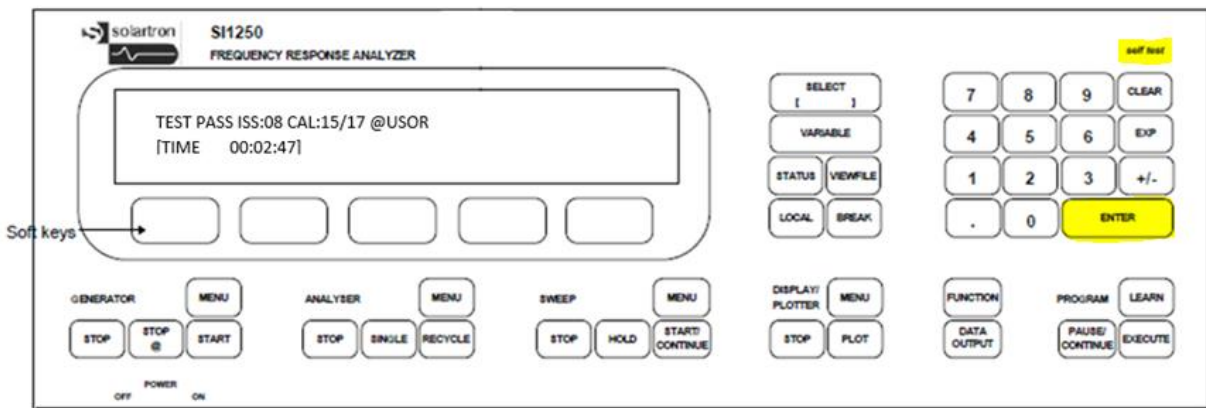
Results for steps 4-8: Freq = 10 KHz, Amp = 1.0 +/-0.4 V, Phase = 0 +/-2 deg phase

Results for step 10: Freq = 10 KHz, Amp = 1.0 +/-0.4 V, Phase = -180 +/-2 deg phase

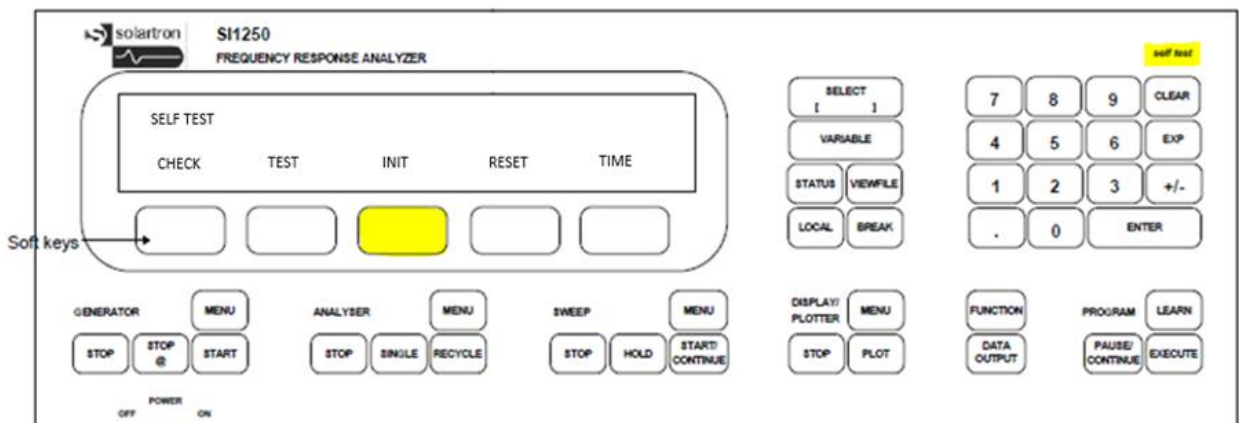
Result for steps 12-14: Freq = 10 KHz, Amp = 1.0 +/-0.4 V, Phase = 0 +/-2 deg phase

Result for step 16: Freq = 10 KHz, Amp = 1.0 +/-0.4 V, Phase = -180 +/-2 deg phase

- Step 19: As a final check, Press “SELF TEST”, then “ENTER” four times. The first time “ENTER” is pressed, lights will move down the display. The second time “ENTER” is pressed, lights will move across the screen left to right. The third time “ENTER” is pressed, the alphabet, along with numbers and symbols will display on the screen. The final time “ENTER” is pressed, it is requested that all keys be pressed (44). After completion, you should see “TEST PASS” on the display.



- Step 20: Complete the test by pressing “SELF TEST”, then “INIT”.







**AMETEK**

[www.ameteki.com](http://www.ameteki.com)  
[si.info@ameteki.com](mailto:si.info@ameteki.com)

© Copyright 2017 AMETEK, Inc. All Rights Reserved



# Solartron 1250E/A/B & 1254A

CONNECTIONS/COMMUNICATIONS-ZPLOT

[HTTP://WWW.AMETEKSI.COM/SUPPORT-CENTER/SOLARTRON-ANALYTICAL/USER-TESTS](http://www.ameteksi.com/support-center/solartron-analytical/user-tests)





When working with the Solartron Analytical 1250E/A/B or the 1254A Frequency Response Analyzer, as with all Solartron FRAs, it is important to run a connections and communications check to ensure that the equipment is ready to use with the chosen computer. The 1250/1254A can operate with ZPlot, SMaRT Impedance Measurement, CellTest, or MultiStat software, depending on the electrochemical or materials interface used. The 1250/1254A will be tested standalone using ZPlot software. The following is a guide to ensure proper connections and communications:

### Powering Up the Instrument

1. Does the instrument power up?
  - 1.1 To confirm, after pressing the power switch in the front lower left corner of the 1250/1254A FRA, the display on the front panel of the apparatus should become active and read “Power Restored”. Additionally, fans on the back of the equipment should begin running.
  - 1.2 **Note:** The 1250B does not have a display, so instrument power up is indicated by the fans only.
  - 1.3 If the instrument does not power up:
    - a. Confirm that the outlet is working with other electrical instruments.
    - b. Try another power cable.
    - c. Check the fuse in the rear panel of the 1250/1254A. The fuse can be found and checked as shown in Figure 1, below. Should the fuse be blown, replace and retry. If the fuse fails again, please contact help at AMETEK®/Solartron Analytical at <http://www.ameteksi.com/contact-us/contact-technical-support> .

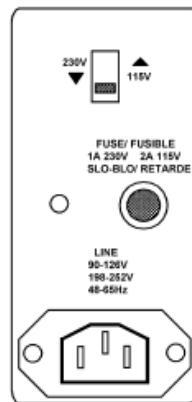


Figure 1

## ZPlot Software-FRA Communications

\*Required software key, as shown below, must be inserted in a USB port on the PC (Figure 2)!



Figure 2

2. Is the FRA communicating with your PC?

2.1. To verify communications, download the latest version of ZPlot software from <http://www.ameteki.com/products/software/zplot-software>.

a. Open the ZPlot program. Click “Setup”, then “ZPlot” (Figure 3).

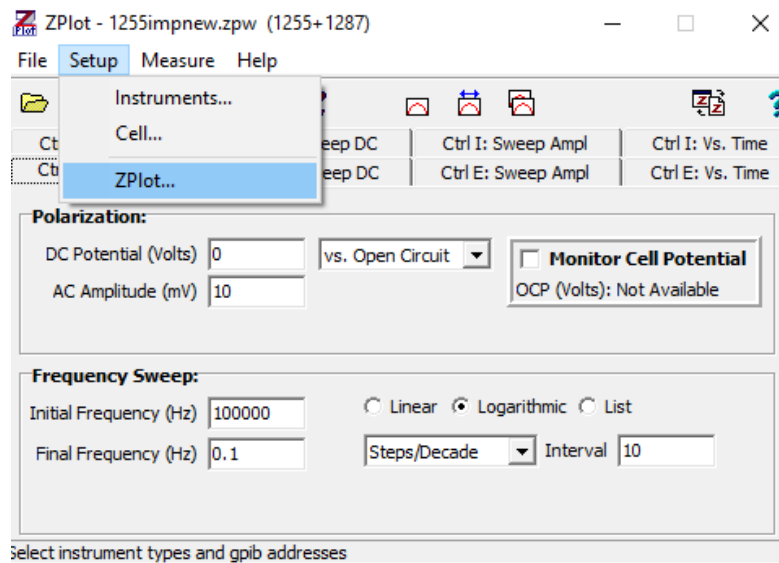


Figure 3

b. Record the setting of the “Pstat/Gstat or Interface” type and the GPIB address (Figure 4).

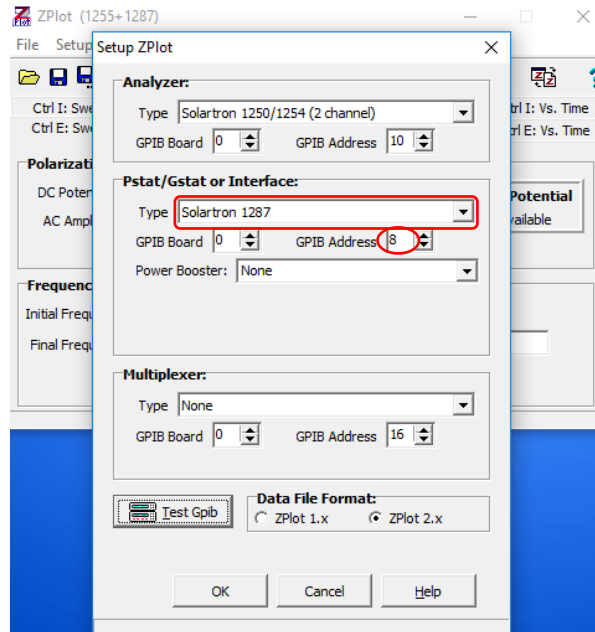


Figure 4

c. Set the “Pstat/Gstat or Interface:” type to “Manual Interface” (Figure 5). This will ensure that any error messages seen in the subsequent tests are related to the FRA.

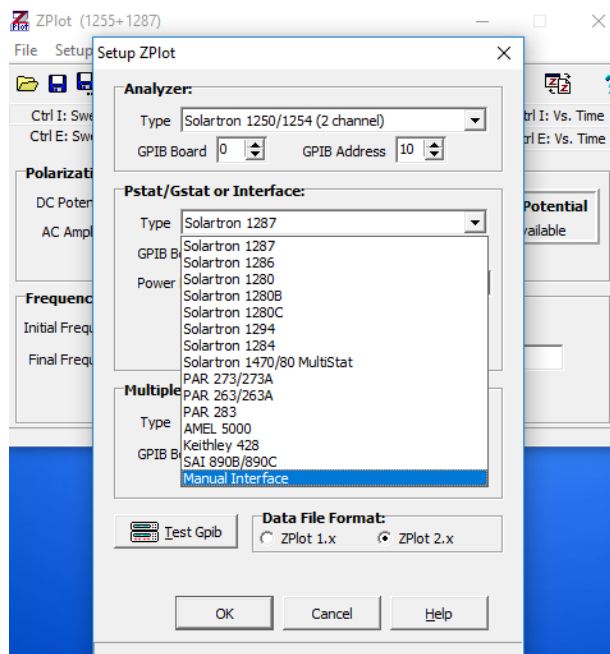


Figure 5

d. Make sure that a National Instruments USB-GPIB adapter is connected from the PC to the GPIB connector on the rear panel of the 1250. **Note:** The 1250 should be the only instrument connected for this test. Click “Test GPIB”. If connections have failed, the following error message will appear (Figure 6).

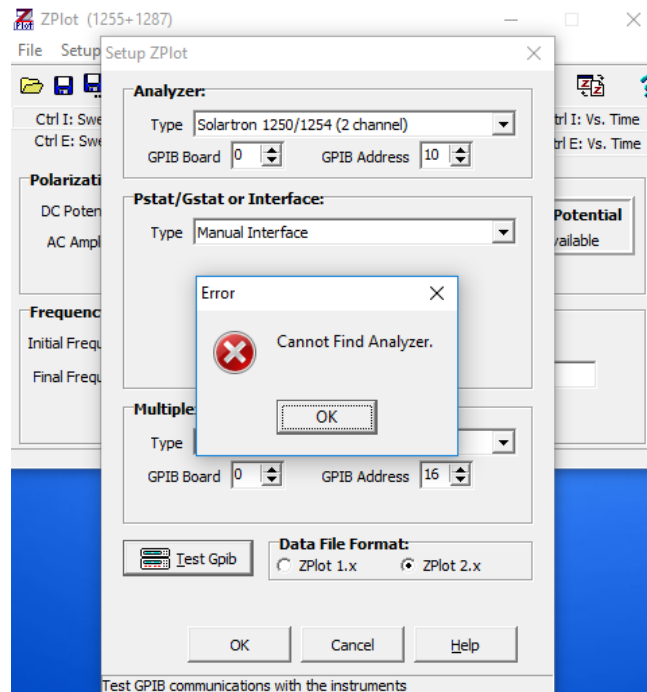


Figure 6

e. After clicking “OK”, a dialogue box will appear that indicates the active GPIB addresses (Figure 7).

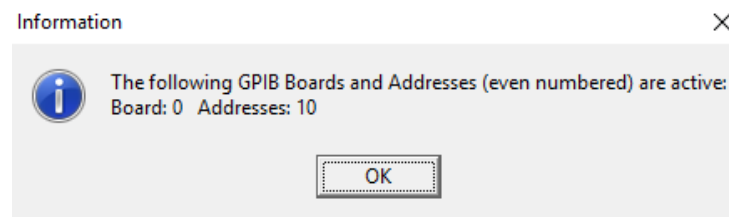


Figure 7

**\*This message is important, because it lists the GPIB address that should be input into the setup. \***

f. Click “OK”, then use the up/down arrows or enter a number to select the GPIB address that was displayed in the previous dialogue box (Figure 8).

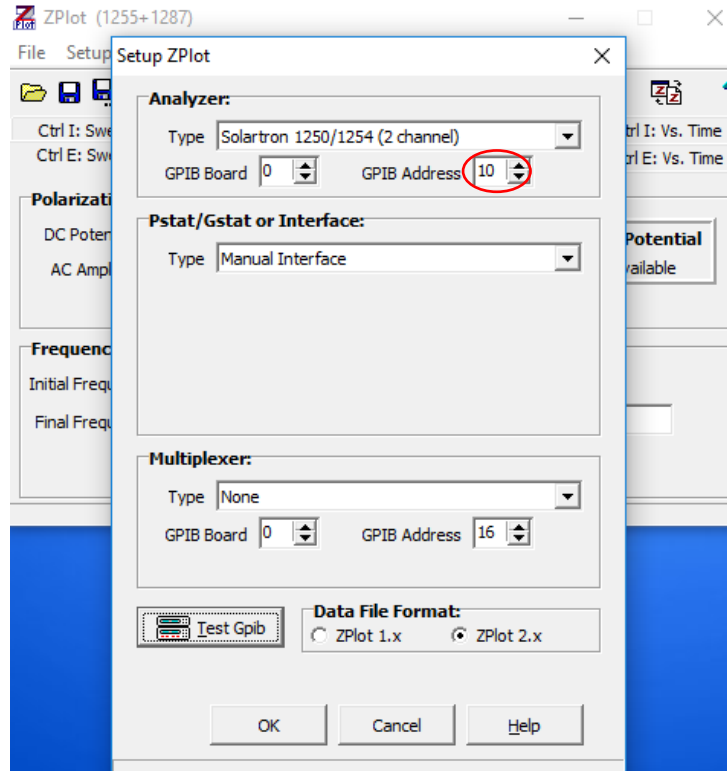


Figure 8

g. Click “Test GPIB”. The address of the instrument should now match the address in the software, and the message below should appear (Figure 9). This indicates that the connection is established, and the 1250 is ready to use with ZPlot software.

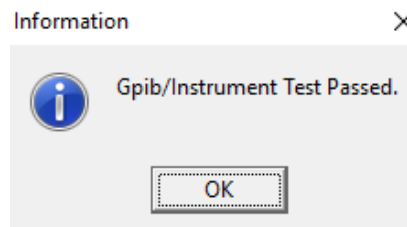
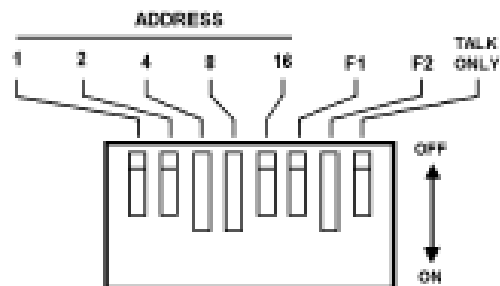


Figure 9

h. Finally, reset the Pstat/Gstat Interface and GPIB address back to its original setting (Figure 4) before clicking “OK” to exit ZPlot setup.

**If Communications Still Not Achieved, Verify the Following:**

- 3.1 Is a National Instruments USB-GPIB in use? The USB-GPIB must be this brand.
- 3.2 Are the GPIB cables connected completely? If these are not screwed in completely, there may be difficulties with communications to the PC.
- 3.2 *Is another piece of equipment being used in conjunction with the 1250/1254A (for example, a potentiostat or a materials interface)?*
  - a. *If so, the GPIB addresses for the two instruments may have been swapped, typically this gives “Error 01” messages on the instrument front panel when the “Test GPIB” button is clicked:*
    - If using ZPlot software, select “Setup”, the “ZPlot”, as shown in Figure 2. Change the GPIB addresses for the analyzer and the Pstat/Gstat or Interface to match the appropriate numbers as in Figure 3.*
  - b. Another possibility is that the instruments may have been set to the same GPIB addresses (this will also give “Error 01” messages when the “Test GPIB” button is clicked). Check the switches on the rear panel of the instruments to make sure that the switches have different address settings – the five switches on the left set the GPIB address. Always select an EVEN address on the switches. If the switch settings are changed you will need to turn the instrument off and on for it to configure to the new address.



The major address is 12.  
 The minor address is therefore 13.  
 The command terminator is a semicolon.  
 The GPIB mode is talker/listener.

\*Re-run the tests with the ZPlot software after switching the numbers to verify the connection.





[www.ameteki.com](http://www.ameteki.com)  
[si.info@ametek.com](mailto:si.info@ametek.com)

© Copyright 2017 AMETEK, Inc. All Rights Reserved