

NACT TUTORIAL 1

RF POWER METER SETUP

Applies to: NACT MODE ONLY

Prerequisites: none

This tutorial takes you through the steps to setup the RF Power Meter interface signal levels to interface with the NACT ADC. This procedure should be performed before using the NACT to avoid exceeding the maximum voltage specification for the NACT's dsPIC micro controller.

Definitions:

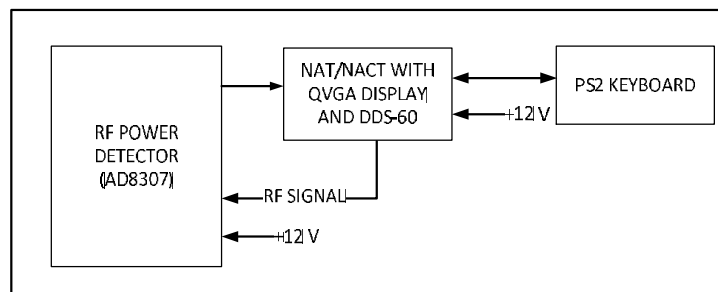
- **NAT – Network Analyzer Terminal:** Requires PHSNA Arduino (UNO/NANO microcontroller) based controller (or equivalent) with communication over the serial interface. The DDS is under control of the PHANA firmware and the PHSNA firmware reads power levels from the RF Power Meter. The NAT firmware emulates an ASCII terminal and an Excel spreadsheet running the PLX-DAQ macro.
- **NACT – Network Analyzer Controlling Terminal:** Does not require a separate controller, uses an on-board DDS-60 to interface direct to the DUI and reads power levels direct from the RF Power Meter. Use of the serial interface is not required. The NACT firmware does everything the NAT firmware does plus all the pertinent functions of the PHSNA controller firmware.

In general, the term NAT will apply to the generic terminal/controller running the Version 3 firmware. NACT functions are activated by the NA Controller mode op mode which is new to Version 3

The minimum requirements for this tutorial are:

- NAT running firmware Version 3.0 or later.
- Logarithmic RF Power Meter such as the RF Power meter designed by W7ZOI and W7PUA used by the PHSNA.
- PS2 Keyboard

For this tutorial, the RF output from the DDS is connected direct to the RF Power Meter input, there is no DUT requirement. Other than the required hardware listed above, there are no other prerequisites for this tutorial.



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1. Connect the DDS-60 output direct to the RF Power Meter input, no DUT. **Do not connect the RF Power Meter output to the NACT at this time.**



2. Power on all components.
3. Create a PLX data form as follows:
 - a. Press Scroll Lock to enter Command mode.
 - b. Press F1 to display the data entry form
 - c. Set up the F1 PLX form to cover a frequency range of 1 MHz to 31 MHz with 50 KHz frequency increments and op modes specified for NAC (Network Analyzer Controller, if appropriate) and Signal generator modes.
Enter the following on the form:

page one:

TITLE – SETUP

FILE NAME – leave blank

FREQ LO – 1000

FREQ HI – 31000

FREQ ST – 50000

leave the rest of page one blank and press Page Down to display page two

page two:

AUTO DELAY(ms) – 0

XTAL PREFIX – leave blank

OP MODES – SC

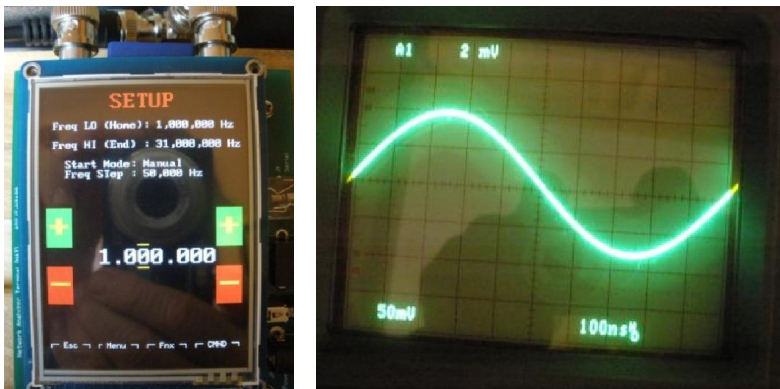
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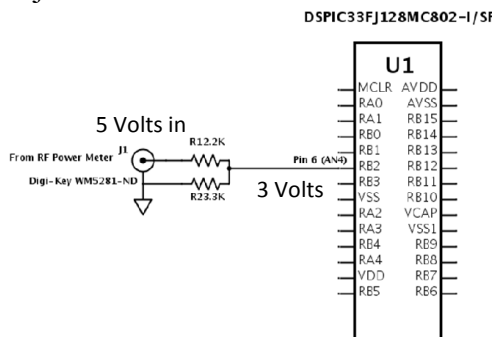
- Press Enter to save the form to EEPROM.



- Press F1 to activate the form.
You should now see the sig gen screen and the DDS output should be 1 MHz.



- Adjust R10 on the RF Power Meter to set the output to about 5 volts.
- Connect the RF Power Meter output to the RF Power Meter input connector on the NACT.
- Measure the voltage on U1-pin 6 and, if necessary, use R10 on the RF Power Meter to adjust it to 3.0 volts.



- Press Escape to exit Signal Generator mode and end the tutorial.