Test Plan for the PBJ-Duino

S. Vance Greenface Labs

4/14/2019

1. Measure Eurorack power supply voltages and record their values.
2. Test Power Continuity
   1. Check ground with an ohm meter. (Establish meter zero by first shorting leads together and noting value).
      1. Connect one meter lead to a ground test point and the other lead to H1 pin 1. Measurement should be less than 1 ohm.
      2. Repeat the above moving the test lead from the H1 pin 1 to H1 pin 2. Measurement should be less than 1 ohm.
   2. Check for shorts. Leave the lead connected to the ground test point and use the other lead to probe connector H1. Every connection on H1 should measure as an open to ground. (other than the ground connections on H1, pins 1 and 2).
3. If continuity tests pass, connect PBJ-Duino to Eurorack with power OFF
4. Test Power Voltages – switch meter to volt meter and connect the negative lead to a ground test point on the PBJ-Duino. Turn ON the Eurorack power. Measurements should closely equal initial measurements made in step 1.
   1. Test +12V by measuring H1 pins 3 and 4.
   2. Test -12V by measuring H1 pins 17 and 18.
   3. Test +5V by measuring H1 pins 19 and 20. (note: some Eurorack systems do not provide +5V)
5. Test Signal Continuity – Use an ohm meter to perform the following tests. Remember to adjust measurements to account for test lead resistance.
   1. Test the switches ON resistance. Resistance between pins on H1 should be less than 1 ohm. The jacks are marked next to H1. J1 goes to H1 pins 5 and 6, J2 goes to pins 7 and 8 and so on.
   2. Test the switches OFF resistance. Measurement should show as open when a plug is inserted into the jack.
   3. Test tip continuity. With the plug inserted, measure the resistance from the tip connection on H1 to the tip of the plug at the open end of the cable. Measurement should be less than 1 ohm (corrected for cable resistance)
   4. Test sleeve continuity. With the plug inserted, measure the resistance from the sleeve of the plug at the open end of the cable to a ground test point. Measurement should be less than 1 ohm (corrected for cable resistance)
   5. Note: it is faster to complete all above tests on a jack before moving on to the next jack.
6. Test analog circuitry
   1. Set signal generator to output 1000Hz +/- 5V sine wave
   2. Feed this sine wave consecutively into each +/- 5V input to test.
   3. Output should be undistorted sine wave of half the amplitude with a DC bias of 2.5V
   4. Feed this output into the related 0-5V input.
   5. Output should be identical to the signal from the generator.
   6. Feed this output into related filter. (refer to filter documentation)
   7. Output should be undistorted sine wave < .035 VRMS. (40db or greater below input)
   8. Switch signal to 100Hz
   9. Output should be > 2.5 VRMS
   10. Verify that the signal does not appear on any of the other channels. (no accidental shorts)
7. Test the Arduino
   1. Turn off power to unit
   2. Plug in the Arduino and turn power back on
   3. Verify that the Arduino On LED lights
   4. Load the “flashing LED” app into the Arduino and verify that it works.
   5. Verify that all the connections are correct as you continue to develop Arduino apps.
8. If all above tests pass you can screw the PBJ-Duino into place and you’re ready to go!