Test Plan for the EyeBall

S. Vance Greenface Labs - 5/5/2019

1. Measure Eurorack +/-12V supplies 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 EyeBall 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 EyeBall. Turn ON the Eurorack power. 12V 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 R5 Pin 3. Measure 4.75 to 5.25 V
   4. Test -5V by measuring R5 Pin 1. Measure -4.75 to -5.25 V
5. Test Dark operating point
   1. Connect DC voltmeter to Norm Output (plus lead to tip, minus lead to sleeve)
   2. Set Offset to middle position, Level and Sensitivity to minimum.
   3. Measure 0V (+/- .2V)
6. Test Offset
   1. Turn Offset knob to minimum (full CCW) position
   2. Measure -5V (+/- .25V)
   3. Turn Offset knob to maximum (full CW) position
   4. Measure 5V (+/- .25V)
   5. Return Offset to center position
7. Test Level
   1. Turn Level knob to max (full CW) position
   2. Cover EyeBall sensor so no light gets through
   3. Measure -4.9V (+/- .2V)
   4. Vary light from none to ambient room lighting.
   5. Note measurement range from -5V to some value more positive than -5V.
8. Test Sensitivity
   1. Turn sensitivity knob up until voltage measures 4.5V.
   2. Cover EyeBall sensor and watch voltage swing to near -5V
9. Test INV Output.
   1. Move cable to INV output
   2. Repeat Tests 5 – 8. Measurements should be the negative of previous measurements
10. Test Clip indicators
    1. Move cable back to Norm output
    2. Turn Offset knob to middle position, Level to 50% position and Sensitivity to minimum (full CCW) position.
    3. Turn Offset knob CCW until Clip- LED lights. The voltage should measure -5V (+/- .2V)
    4. Turn Offset knob CW until Clip+ LED lights. The voltage should measure 5V (+/- .2V)
11. Test filter
    1. Set signal generator to output 60Hz +/- 4Vpp (1.414VRMS) sine wave with +2V DC offset
    2. Feed this sine wave into TP2.
    3. Output should be < 15 mVRMS
12. Test Pulse Outputs
    1. Set Pulse Length knob for minimum (full CCW) position
    2. Set Offset, Level and Sensitivity knobs for middle position
    3. Trigger pulse by sweeping your hand over the EyeBall sensor.
    4. Measure a 5V pulse 57 – 86 ms. (nominal 71 msec)
    5. Set Pulse Length knob for max (full CW) position
    6. Measure a 5V pulse 4.5 – 10.2 sec. (nominal 7.1 sec)
    7. Repeat for Pulse- but measure inverted pulse length.
    8. Verify Yellow LED is ON during pulse.
    9. Note: Pot and cap are rated at +/- 20%. Pulse Length ~= .71RC with Vthresh=2.46V
13. Test Toggle Output
    1. Verify that the TOG output toggles between 0 and 5V whenever a pulse is sent
    2. Verify that the Green LED toggles when a pulse is sent
14. If all above tests pass you can screw the EyeBall into place and you’re ready to go!