

# SANDIN IP DIFFERENTIATOR KIT ASSEMBLY INSTRUCTIONS

This DIY kit assembly guide assumes that the builder is familiar with basic thru-hole soldering techniques and has the ability to identify and mount the electronic components included. A complete bill of materials are included on the opposite column. Resistor color-bands can be identified using the tool here:

[http://www.musicfromouterspace.com/analogsynth\\_new/ELECTRONICS/TOOLBOX/toolbox.html#RESCHART](http://www.musicfromouterspace.com/analogsynth_new/ELECTRONICS/TOOLBOX/toolbox.html#RESCHART)

If you're new to DIY electronics kits or find anything confusing about these directions, please visit [www.lzxindustries.net/bitvision](http://www.lzxindustries.net/bitvision) for links to helpful resources and videos about soldering and component identification.

## STEP BY STEP

- 1) Mount all resistors and ferrite beads (unmarked solid gray parts that look like resistors), solder and clip leads.
- 2) Next mount all Integrated Circuits (ICs). Ensure that the notch on the top of each chip matches the orientation of the notch shown on the PCB silkscreen. Solder and clip leads. Take care to not overheat IC pins while soldering.
- 3) Mount IDC power header, ensuring that the notch in the plastic box matches the notch on the PCB layout. Turn over and hold flat against tabletop and solder all pins.
- 4) Mount all transistors and ceramic capacitors. Solder and clip leads.
- 5) Mount all electrolytic capacitors, ensuring that the long lead (positive side) is placed thru the square solder pad with the + sign next to it. Solder and clip leads.
- 6) Remove protective plastic from metal frontpanel. Mount all jacks on frontpanel with pins facing towards the left-side edge. Ensure that all jacks are firmly attached and straight. Mount assembled PCB onto the jacks, and holding the PCB flush with the jacks, solder all jack lugs.
- 7) Thoroughly check your work for accidental solder bridges or overlooked solder joints. You're done!

## BILL OF MATERIALS

<b>Resistors</b>	
R3, R6, R7, R8, R9, R13, R16, R27	499R
R1, R18, R19, R20, R21, R22	4.99K
R4, R10, R11, R14, R17, R23, R24, R25, R28	10K
R2, R5, R12, R15, R26, R51	100K
<b>Ceramic Capacitors</b>	
C4	5.6pF (5.6)
C6	12pF (120)
C7	20pF (200)
C10	47pF (470)
C8	100pF (101)
C9	470pF (471)
C2, C3	0.1uF (104)
<b>Electrolytic Capacitors</b>	
C11, C12	10uF
<b>Integrated Circuits (ICs)</b>	
IC2	LM6172
<b>Transistors</b>	
Q1, Q2, Q3, Q4, Q5, Q6	2N3904
<b>Ferrite Beads</b>	
F1, F2	Ferrite Bead
<b>Other Parts</b>	
(8) Right Angle 3.5mm Jack	
(1) 2x8 Polarized IDC Power Header	
(1) Sandin IP Differentiator Frontpanel	
(1) Sandin IP Differentiator Printed Circuit Board	
<b>Included Accessories</b>	
(2) M3 Machine Screw for Mounting	
(1) 16-pin IDC Power Connector Cable	

