The DIG-CXXXX Kit Assembly Manual

Last Updated: August 23, 2002

READ THIS BEFORE PROCEEDING!!!

Disclaimer

This manual is for those who have purchased an unassembled DIG-CXXXX digital sound card. This kit is intended for advanced users ONLY. As such, the majority of the steps in the process will be assumed as common knowledge and will not be covered here. You MUST be able to solder small surface mount components. If you get lost at any point in the assembly process, stop immediately and contact support at support@eutronix.com . We are not responsible for improperly assembled kits. If you feel qualified to assemble this kit, please continue.

Thank you for your purchase of the DIG-CXXXX. We hope you derive many hours of listening pleasure from its use. It is advised that you go over the contents of the package to ensure that there are no missing parts. All kits regardless of configuration include:

Board components:

- 1 - digital audio output printed circuit board
- 1 - digital audio transmitter IC (*U1*)
- 1 - buffer/line driver IC (*U2*)
- 1 - reset IC (*U3*)
- 1 - green LED (*D1*)
- 1 - 8 resistor, 47 KΩ resistor network (*RP2*)
- 1 - 8 resistor, 100 Ω resistor network (*RP1*)
- 1 - 402 Ω surface mount resistor labeled '4020' (*R1*)
- 1 - 374 Ω surface mount resistor labeled '3740' (*R2*)
- 1 - 90.9 Ω surface mount resistor labeled '90.9' (*R3*)
- 4 - .1 uF surface mount capacitors (*C1, C2, C5, C7*)
- 2 - 1000 pF surface mount capacitors (*C3-C4*)
- 1 - 1 uF polarized electrolytic surface mount capacitor (*C6*)
- 1 - digital isolation transformer (*T1*)
- 1 - 7 conductor right-angle header

Installation Items:

- 1 - 6 conductor signal/power harness
- 1 - 2.54 mm jumper block
- 2 - sections of double-sided tape

***Coaxial* kits** will also include:

- 1 - panel mount coaxial harness with hardware
- 1 - 2 conductor vertical header

***Optical* kits** will also include:

- 1 - panel mount TOSlink harness
- 1 - 2.6 x 8 mm or 2.6 x 10 mm self tapping screw
- 1 - 4 conductor vertical header

***I^2S* kits** will also include:

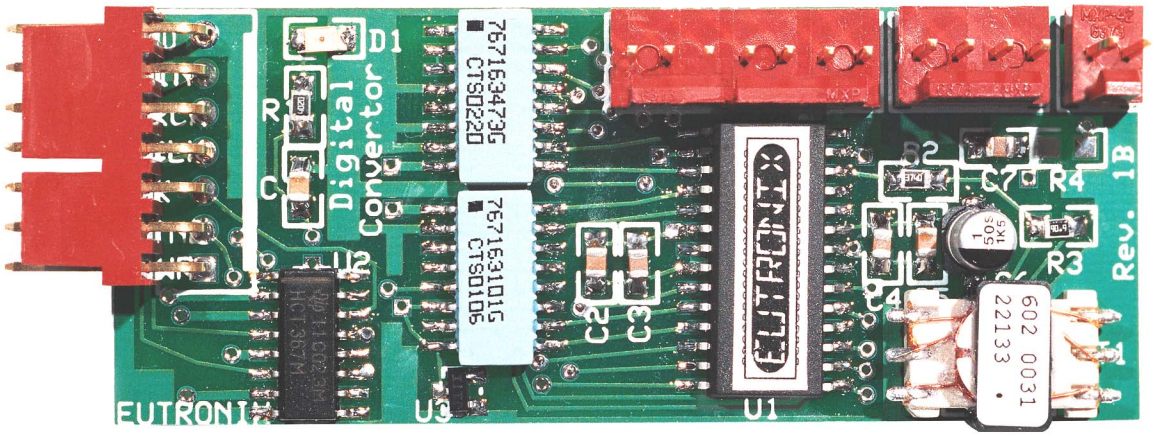
- 1 - panel mount I^2S harness with hardware
- 1 - 7 conductor vertical header

Assembly Process

Preface

Please put all parts in one place and be careful not to lose them as many of them are very small. To ensure that the delicate ICs in this kit are not damaged during handling and assembly, work in a static-free environment and keep all soldering times to a minimum. Use a high quality rosin core electronic solder. We recommend 60/40 or 62/38. The part values for each part are available in the parts list.

Please use this picture as a guide as you construct your DIG-CXXXX:



STEP 1 – Soldering the ICs

- Solder *U3*, the 3-pin SOT-23 reset IC. Solder in the location designated '*U3*' on the printed circuit board.
- Next solder *U2*, the 16-pin SOIC buffer/line driver IC, making sure to position pin '1' of the IC (indicated by the white line on the top of the IC) towards the notch on the silkscreen of the printed circuit board. Solder in the location designated '*U2*' on the printed circuit board.
- Finally, solder *U1*, the 28-pin SOIC digital audio transmitter IC, making sure to position pin '1' of the IC (indicated by the dimple on the top of the IC) towards the notch on the silkscreen of the printed circuit board. Solder in the location designated '*U1*' on the printed circuit board.

STEP 2 – Soldering the resistors

- Solder *RP1*, the 100 Ω blue resistor network labeled '767163101G.' For 'aesthetics' place pin '1' indicated by the black dot on the resistor network towards the notch on the circuit board. Solder in the location designated '*RP1*' on the printed circuit board.
- Solder *RP2*, the 47K Ω blue resistor network labeled '767163473G.' For 'aesthetics' place pin '1' indicated by the black dot on the resistor network towards the notch on the circuit board. Solder in the location designated '*RP2*' on the printed circuit board.
- Solder *R1*, the 402 Ω 0805 SMD resistor, to the pads labeled '*R1.*'
- Solder *R2*, the 374 Ω 0805 SMD resistor, to the pads labeled '*R2.*'
- Solder *R3*, the 90.9 Ω 0805 SMD resistor, to the pads labeled '*R3.*'

STEP 3 – Soldering the capacitors

- Solder *C1*, *C2*, *C5*, and *C7*, the .1 uF 0805 SMD capacitors, to the pads labeled '*C1*,' '*C2*,' '*C5*,' and '*C7*' respectively.

- Solder *C3* and *C4,* the 1000 pF 0805 SMD capacitors, to the pads labeled '*C3'* and '*C4'* respectively.

- Solder *C6*, the 1 uF polarized electrolytic SMD capacitor to the pads labeled '*C6*,' making certain to position the capacitor with the black marking indicating 'negative,' opposite the '+' sign in the silk screening on the printed circuit board. Be sure to leave room for the transformer '*T1*.'

STEP 4 – Soldering the L.E.D.

- Solder *D1*, the 1206 SMD L.E.D. to the pads labeled '*D1*.' Notice that there is a green marking on the top (light emitting side of the L.E.D.). The side of the L.E.D. with the green marking must be soldered to the pad nearest the '*D1*' silkscreening over the ground plane (darkened area).

STEP 5 – Soldering the transformer

- Insert *T1*, the digital isolation transformer, into the six holes labeled '*T1*' in the printed circuit board with the black dot on the label of the transformer towards the '*U1*' silkscreen.

STEP 6 – Soldering the headers

- Solder each of the headers included with your kit according to the following:

Signal/Input- This is the seven-conductor, right-angle header included with all kits. It should be inserted into the row of seven holes surrounded by a bounding box on the left edge of the board (as viewed from above with the various silkscreens right-side-up) with the contacts pointing out, away from the board, not toward the interior. You may want to insert the mating six conductor signal cable connector into the header before soldering to ensure that there is sufficient clearance for the connector to be inserted or removed.

Coax- This is the two-conductor, vertical header included with all kits. It should be inserted into the row of two holes on the top, right top edge labeled 'COAX' with the locking tabs of the header installed nearest the inside of the board.

Optical- This is the four-conductor, vertical header included in optical kits. It should be inserted into the row of four holes near the top, right edge labeled 'OPTICAL' with the locking tabs of the header installed nearest the inside of the board.

I^2S- This is the seven-conductor, vertical header included in I^2S kits. It should be inserted into the row of seven holes surrounded by a bounding box near the top, middle edge, with the locking tabs of the header installed nearest the inside of the board.

STEP 7 – Inspection and final assembly

- Cut and/or grind off the pointy surfaces of the headers and transformer that protrude from the bottom half of the board, to prevent them from shorting out on the case of your player. While doing this, be careful to keep the filings from becoming lodged in the circuit board or any of its components. **This step is VERY important. DO NOT omit it.**

- Your board should now be fully assembled. Take a few minutes to examine the solder joints. Look for any obvious solder bridges or incomplete or omitted solder joints. Make sure that all polarized components were installed according to the instructions above.

- If all seems well, proceed to the "The DIG-CXXXX Installation and User's Manual."