Decoder circuit board assembly instructions

Disclaimer

Before you start building any of the projects on this website, keep in mind that I can't be held responsible for any damage that is caused by building and using the designs related to the GINO-MIDI Interface. All effort has been done to make the schematics and instructions as correct as possible and the whole project is successfully tested and used by not only me, but also by others then me.

Partlist decoder

- 1 x Integrated Circuit 74HCT138 (8-1 decoder IC)
- 1 x IC socket 16 pin for the 74HCT138
- 1 x 100 nF (ceramic or disc capacitor)
- 1 x 20 Pin Shrouded Male Headers
- 1 x Spacer
- 1 x Bolt M3 x 18
- 1 x Nut M3
- 1 x HeadS80 for connection with databus matrix
- 1 x PCB 02032010-2

Explanation of the operation of a decoder.

The decoders are the link between the MIDI mainboard (which may be the main board of the Small-Midi 2 or the main board of the BIGMIDI) and the diode arrays of keyboards and / or register-switches. The microcontroller of the main board give each time a signal to each decoder, with the message, "Now it's your turn to pass the keystrokes". The identification of each decoder for the micro-controller is achieved by the connection we make with JP1. With this jumper we give an "address" to each decoder.
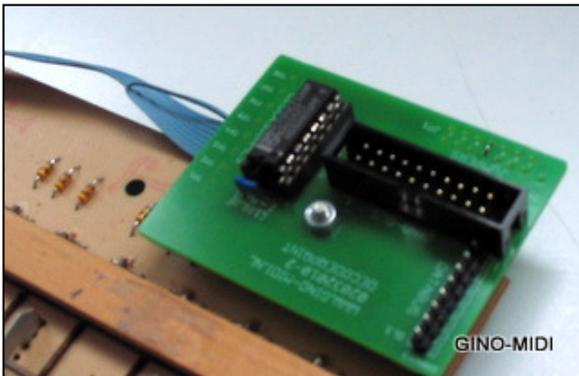
In total there are 4 (Small Midi 2) or 7 (BIGMIDI) decoder clock signals from the MIDI main board and therefore can 4 or 7 decoders be connected and addressed.

For a 8th decoder is also a clock signal (TP9) but this signal does not come with the GINO BUS. In the extreme case of an 8th decoder should be necessary, a separate connection from TP1 of the main board of the BIGMIDI to TP9 of that particular decoder should be made. A jumper on that PCB decoder does not need to be made.

Assembly.

The assembly of a decoder PCB is simple if the following instructions are observed.
The assembly of the decoder circuit board is not a major work and consists of only the installation of some components. On the mounting diagram this is clearly indicated. Observe mounting the IC, and IDC connector 2520 on the marker pen number 1. A small jumper should be made to put the decoder in the correct address range of the microcontroller. This jumper can be found at JP1; this was in explaining of the operation of the decoder circuit board already spoken. See below a table showing the jumpers.

The 8 pin male header is mounted on the copper side of the PCB at the position indicated by SL1. Through SL1 the decoder board can be inserted in the black socket, when using the keycontactsystem, in the first matrix circuit board. Using the supplied bolt M3 x 18 + nut + spacer you can securely attach the decoder circuit board to the matrix board.
Right of the IC you see the 8 solder pads to be connected with the CLH points of the matrix of the keycontactsystem. These are namely the clock signals to the arrays in a row to read.
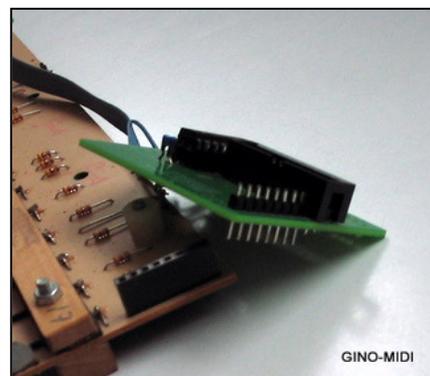
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Below is an overview of the layout of the whole matrix showing the key names and numbers.

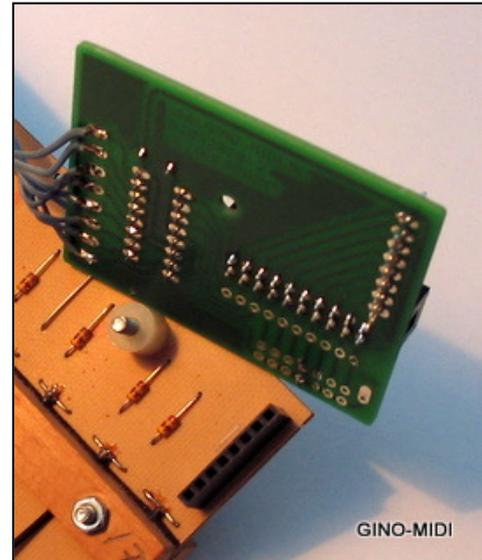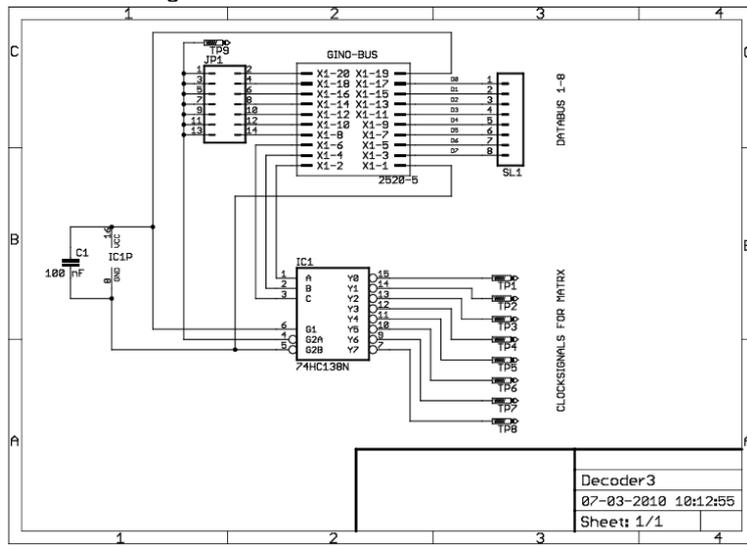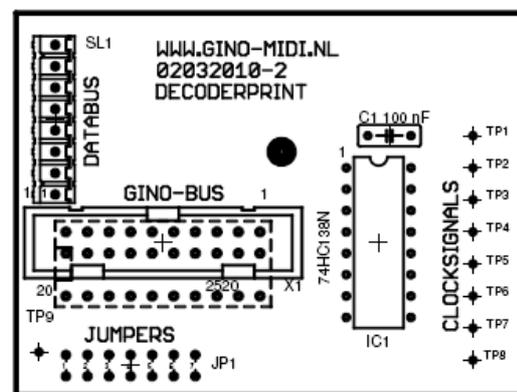| Clocksignalen	Matrix part	Keynames		Keynumbers
TP1 to CLL of the	1st matrix part	C groot	- G groot	1 t/m 8
TP2 to CLL of the	2nd matrix part	Gis groot -	dis klein	9 t/m 16
TP3 to CLL of the	3rd matrix part	e klein	- b klein	17 t/m 24
TP4 to CLL of the	4th matrix part	c1	- g1	25 t/m 32
TP5 to CLL of the	5th matrix part	gis1	- dis2	33 t/m 40
TP6 to CLL of the	6th matrix part	e2	- b2	41 t/m 48
TP7 to CLL of the	7th matrix part	c3	- g3	49 t/m 56
TP8 to CLL of the	8th matrix part	gis3	- c4	57 t/m 61

Jumpers at JP1
Jumper between 1 and 2 is the address for port 1
Jumper between 3 and 4 is the address for port 2
Jumper between 5 and 6 is the address for port 3
Jumper between 7 and 8 is the address for port 4
Jumper between 9 and 10 is the address for port 5
Jumper between 11 and 12 is the address for port 6
Jumper between 13 and 14 is the address for port 7
Notice: You may use only one jumper per decoder circuit board.

Electronic diagram

Mounting diagram

PCB layout

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