## Instruction manual of a build and tested GINO-MIDI Interface

This manual is a description of a completely build and tested GINO-MIDI Interface, This interface exist of the main board of the Small-MIDI or the Big-MIDI, and in case of a Big-MIDI optionally also the LCD&Switch PCB.

Additionally there is for each keyboard, pedal and register panel a

• decoder PCB (if a diode matrix is already present) or
• FATAR decoder PCB (for the FATAR keyboards), or
• decoder and matrix on one PCB.

Hereinafter called "decoders".

## GINO Bus

The GINO Bus is also completely mounted with the corresponding connectors. These connectors fit only one way into the decoders.
The order of the decoders on the GINO Bus you can decide yourself. It does not matter whether you put at the beginning of the GINO Bus the decoder of the pedal or at the end of the GINO Bus. The main board of the GINO-MIDI interface itself is also connected to the GINO Bus with one of the connectors.
You can disconnect the connectors again by taking the flat cable and the body of the plug. Only pulling by the flat cable can cause damage to the GINO Bus. Do this carefully and do not force anything.
All this is tested and is delivered working. It is advisable and instructive for you to perform the following actions. Its purpose is to make you familiar with the working of the matrices, but also to test the delivered product yourself.

## The First connections

The GINO-MIDI interface can of course only work well if we connect a supply voltage. For the power supply voltage, one can make use of an adapter which delivers a voltage of 9 to 12 volts DC. Note that the 12 volt must not be exceeded. In unloaded state the 12 volt becomes soon 15 volts, and because this circuit draws almost no current, this power will not be lower due to the load.
Also pay attention to the polarity of the adapter. The center pin is the positive, and the round outside the min.

First we will only connect the GINO-MIDI interface mainboard to the MIDI input of the computer. Thus, even without the use of the GINO Bus and the decoders.



It is important that you have installed on your computer a midi monitor program.
One such program that works very well for this purpose is MIDIOX.

See www.midi-ox.com.

With this program you can quite properly follow the midi codes that are transmitted by the GINO-MIDI Interface. Really recommended.

The moment you start applying power the microprocessor do all his work. First he sends some midi codes. These are the midi codes for All Notes Off for each channel. These are codes to bring all channels of the MIDI system to silence. The Big-MIDI also broadcast the positions of the volume controls. So you see 16 lines for All Notes Off codes, and in case the Big MIDI also 6 codes concerning the state of the volume controls. (if the first code does not appear on the screen is not a problem; they have been sent)
If this works we are going to connect the GINO Bus to one of the decoders. The connectors of the GINO Bus fits only one way in the PCB male plugs.

## Connecting the decoders.

We will now in detail describe the connection and testing of the decoder PCB and the decoder matrix PCB. For FATAR decoder PCB it is only a matter of connecting to the GINO Bus.
Plug And Play one calls that too.

Connecting the GINO Bus to the decoder PCB.
Connect the GINO Bus to the main board of the Small-MIDI or Big-MIDI and also connect one of the decoder PCB's.
We are now going to simulate the matrix of, for instance, the upper keyboard by making a shortcut between the point TP1, and D0 of the decoder PCB of the upper keyboard.
You will now see the following midi code on the screen.
90 24 7F by making of the shortcut and
80 24 7F at breaking of the shortcut.
Also, you will hear a sound that is equivalent to the low C key on the chosen instrument that is set in MIDI OX.

Be careful by making these shortcuts. Make sure that you only connect these points with each other.

A shortcut between TP1 and D1shows the following midi code
90 25 7F by making of the shortcut and
80 25 7F at breaking of the shortcut.
This then is the C#.
This continues until D8 represents the G.

You can then create a short circuit between TP2 and D0.
The following MIDI code appears.
90 2C 7F by making of the shortcut and
80 2C 7F at breaking of the shortcut.
This then is the G#.

So you can simulate all 61 keys of the keyboard.

These operations can also be done with the lower keyboard, the pedal and the registry panel. The registry panel broadcast other midi codes. These are the codes for the program changes. This is the case with the Small-MIDI.
The Big-MIDI transmits in the default setting the codes Note on / off, but can be changed by the LCD&Switch PCB and adjusted to send the program change midi codes. See the Manual Big-MIDI and the table of Midi Messages

*This goes for the Small-MIDI.*
At the upper keyboard you will also notice that by shorting TP8 and D7 other midi codes are emitted than we've seen so far. These are the midi codes for All Notes Off for each channel. You can connect an extra diode and a switch here on which you can silence the instrument while playing in an emergency. This is a kind of Panic Switch. We ourselves have never experienced this. See also the description of the construction of the Small-MIDI interface.
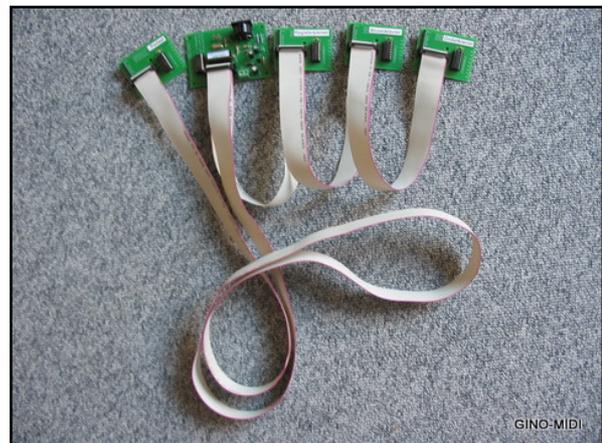
Connecting the GINO Bus to the decoder and matrix PCB
The matrix is already applied to the decoder_matrix PCB. We try to simulate the key contacts.
Make for this purpose a shortcut between pin 1 of connector SV2 and pin 1 of connector SV3.
You will now see the following midi code on the screen.
90 24 7F by making of the shortcut and
80 24 7F at breaking of the shortcut.

Also, you will hear a sound that is equivalent to the low C key on the chosen instrument that is set in MIDI OX.

You can then make a shortcut between pin 1 of connector SV2 and pin 2 of connector SV3.
You will now see the following midi code on the screen.
90 25 7F by making of the shortcut and
80 25 7F at breaking of the shortcut.
Again, you will hear a sound that is equivalent to the low key C# the chosen instrument that is set in MIDI-OX.
Etc ...

Then, the second matrix part.
You create a shortcut between pin 2 of connector SV2 and pin 9 of connector SV3.
You will now see the following midi code on the screen.
90 2C 7F by making of the shortcut and
80 2C 7F at breaking of the shortcut.
Again, you will hear a sound that is equivalent to the low key G# the chosen instrument
is set in MIDI-OX.

The GINO BUS is now in the form of a ribbon through the organ console and connects the decoders to each other and finally the main board. In this way, we have a kind of module construction that also later is easy to disassemble in case of a malfunction or transport.

## Connecting keycontacts to the decoder matrix PCB
The 16-pin flat cable should now be connected to the key contacts. This flat cable, you must split and cut to the size at the level of the respective key contacts. The counterpart the (groups of 8) key contacts are the clock signals coming from connector SV2. This is a 10 pole flat cable of which only 8 wires are used. Again, the flat cable must be split up and be brought to the correct length.
For clarity: the first wire of a flat cable is colored and that is number 1.

## Addressing decoders.
The address of a decoder circuit is determined by the short at JP1. On the PCB these short connections are marked with 1, 2, 3, 4, 5, 6 and 7.
In the diagram are also numbered paragraphs.

Shortcut JP1 by using the Small-MIDI
Shortcut 1 between point 1 and 2 is the adress of port 1 Registry panel
Shortcut 2 between point 3 and 4 is the adress of port 2 Upper keyboard
Shortcut 3 between point 5 and 6 is the adress of port 3 Lower keyboard
Shortcut 4 between point 7 and 8 is the adress of port 4 Pedal

Shortcut JP1 by using the Big-MIDI
Shortcut 1 between point 1 and 2 is the adress of port 1 Registry panel 1
Shortcut 2 between point 3 and 4 is the adress of port 2 Upper keyboard
Shortcut 3 between point 5 and 6 is the adress of port 3 Lower keyboard
Shortcut 4 between point 7 and 8 is the adress of port 4 Pedal
Shortcut 5 between point 9 and 10 is the adress of port 5 Registry panel 2
Shortcut 6 between point 11 and 12 is the adress of port 6 Keyboard x
Shortcut 7 between point 13 and 14 is the adress of port 7 Keyboard x

**Note: Per decoder_matrix PCB you may make one shortcut.**

**TIPS and TRUCKS:**
The points TP1, TP2, etc. of a decoder PCB are intended as solder pads. It is advisable that the wires that provide the clock signal for the matrices are soldered the copper side.

When testing the pedal you will notice that the range of the pedal is as big as a keyboard. Namely 64 keys. We will keep left, in fact, 32 pedal keys over. If you are what more handier with the software as jOrgan, GrandOrgue or Hauptwerk can there also take your advantage.

**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.

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