MRG2 – MIDI merging controller

www.midi-hardware.com
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Overview

This document describes the layout and connections of MRG2 master controller. All user settings and compatible scanners are described in *"MIDI User Settings & Scanners GUIDE"*.
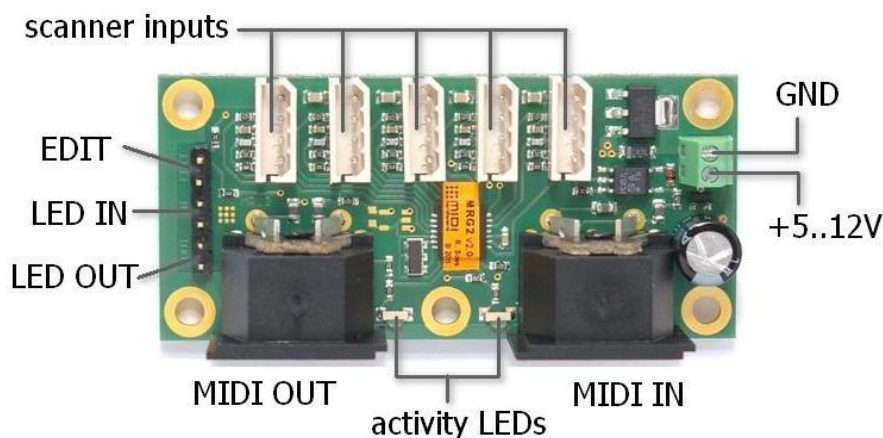
This board is the heart of medium to large scale consoles with multiple keyboards and lots of additional functions. By itself it cannot interface to any type of contacts or potentiometers. But its main purpose is to combine external scanners and translate to MIDI. MRG2 can also merge incoming MIDI traffic and connected scanners activity into single MIDI stream, as well as change display state of LEDs and LCDs controlled by incoming MIDI. There are 5 scanner inputs to add physical controls. Each of them can take up to 128 keys if keyboard scanner is connected, and up to 64 potentiometers with pot scanners. Up to 10 keyboard scanners can work together, but only one input at a time can work with a chain of potentiometer scanners. Likewise, only one input can be used for LCDs, but you can have up to 100 of them if equipped with proper power extender inserted every 10 LCD modules.

It is possible to combine keyboard and potentiometer scanners on one input, thus 640 keys, 64 pots and 100 LCDs maximum can be connected in total to one MRG2.
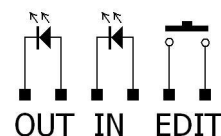
Features:
- MIDI merge input
- 5 scanner inputs for keyboards and potentiometers
- user defined split for every keyboard
- independent transposition for all keyboards/splits
- user defined MIDI channel for each keyboard/split and pot
- user defined MIDI event for each pot and keyboard split
- can change LEDs state in LITSW modules on reception of MIDI notes
- controls LCD to display text messages from Hauptwerk
- select Program Change from keyboard by entering number 001-999
- all settings remain after disconnecting power
- DC power supply (5..15V DC)

Connections

The 6-pin header at the left side of PCB contains connections for external activity LEDs (MIDI OUT and IN) and the EDIT momentary button. The pin out is shown here:

The button allows changing all user settings as described in *User Settings Guide*. You don't need that if special programing KEYPAD is present in the MIDI system, or if you will do it via MIDI Sys-Ex, or if you don't want to change any default settings.

5 scanner inputs are treated the same way, you can plug any kind of scanner to any of those 5 inputs. They only differ in default MIDI channel of plugged keyboard scanner. Those are from 1 to 5, counting from left scanner input. If there are 2 chained keyboard scanners, the 2nd ones work in channels 6 to 10. Of course you can change the channels for each keyboard at any time.

Power Supply

Recommended power supply range is between **5.3 and 9V DC**. It is possible to run this your MIDI set from lower voltage (even below 3V), but this is out of MIDI specification, and your instrument or sound module may not receive MIDI properly then. Higher supply voltage is acceptable **up to 15V**, but only for setups without extensive current draw, that means without multiple LCDs, and LITSW.

Scanner connectors of MRG2 provide power to all scanners, so you **must NOT connect any power supply anywhere else** in entire MIDI system than the screw terminal shown in picture above. Connecting power in reverse will not cause any damage, but of course it will only work with proper power polarity.

Current consumption depends on the number of attached scanners and varies between 3 and 15mA, making it suitable for battery operation. This figure doesn't include load caused by potentiometers connected to POT-capable scanners. With LCD modules it takes more current, adding about 15mA per each display.