

# **MRG3**

## **MIDI master controller**

hook-up info

**[www.midi-hardware.com](http://www.midi-hardware.com)**

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# Overview

This document describes the layout and connections of MRG3 master controller. All user (MIDI related) settings and use of compatible scanners are described in *"MIDI User Settings & Scanners GUIDE"*.

This board is the brain 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. There are 4 scanner inputs to add physical controls. Each of them can take up to 128 keys with keyboard scanner connected, and up to 64 potentiometers with pot scanners. All 4 inputs can be filled with keyboard scanners so 8 keyboards total, but only one input at a time can work with a chain of potentiometer scanners. Although it's possible to connect more, in MRG3 it makes sense to have only one LCD module. An LCD module is recommended for easier setup and better appearance.

## Features:

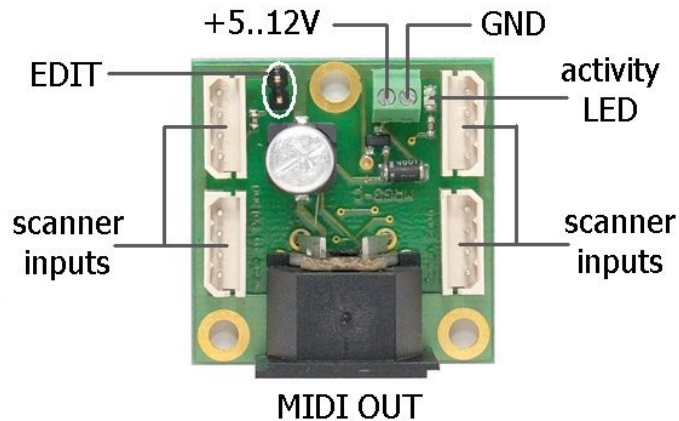
- 4 scanner inputs for keyboards and potentiometers
- user defined split for every keyboard
- independent transposition for all keyboards/splits, as well as global control for all keyboards
- user defined MIDI channel for each keyboard/split and potentiometer
- user defined MIDI event for each pot and keyboard split
- dial MIDI Program Change together with Bank Select from keypad
- all settings remain after disconnecting power
- DC power supply (5..15V DC)

MRG is available in 2 functionally identical versions. Standard MRG3 is to be installed at the side wall of your equipment, so it's possible to plug MIDI cable to on-board DIN socket. Alternatively it may be installed in the middle of your casing if you plan to plug typical MIDI DIN cable permanently, for example from a PC (via USB/DIN cable) mounted in the same case.

The other version, with DIN socket on cable is intended to use in cases when you want to have external MIDI DIN socket on thick panel. Sometimes the best space for MRG3 is in deep inside the box because all scanner cables meet there and it's easier to lead one MIDI cable, than 4 scanner cables. 25cm or 60cm cable with high quality DIN panel mount socket is always included with MRG3 order.

Other than DIN socket type both version are exactly the same.

## Connections



There is 2-pin header on board, where you can connect momentary button for invoking EDIT mode. The button allows changing all user settings as described in *User Settings Guide*. You don't need that if special programming KEYPAD is present in the MIDI system, or if you don't want to change any default settings.

4 scanner inputs are treated the same way, you can plug any kind of scanner to any of those 4 inputs. They only differ in default MIDI channel of plugged keyboard scanner. Of course you can change the channels at any time.

## Power Supply

The best power supply range is between **5.2 and 9V DC**. It is possible to run your MIDI set from lower voltage, but using less than 4.5V is not recommended. Running at 3-4.5V makes the output to work out of MIDI specification, so your instrument or sound module may not receive MIDI properly. Higher supply voltage is acceptable **up to 15V**, but only for setups without extensive current draw, that means when there are no multiple LCDs, LITSW, and all potentiometer's resistance is not lower than recommended 20k.

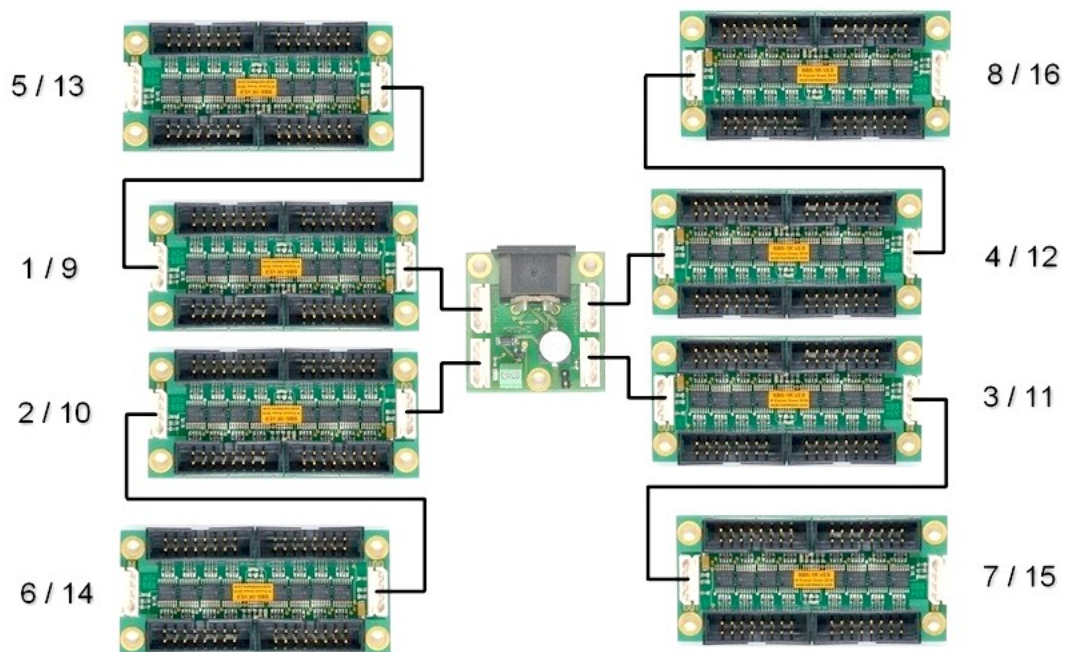
Scanner connectors of MRG3 provide power to all scanners, so you **must NOT connect any power supply anywhere else** in entire MIDI system than the screw terminal shown in picture above. Connecting power in reverse will not cause any damage, but of course it will only work with proper power polarity.

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. LCD module takes about 15mA.

## Default MIDI settings

By default MRG3 comes configured in the way described below. You can of course change all of this in EDIT mode. Refer to „*MIDI User Settings & Scanners GUIDE*“ for details.

- all keyboards have starting MIDI note 36, typical to most 5-octave keyboards
- keyboard connected to contact scanners work in MIDI channels according to the diagram below. Second number shows channel of upper split if it is activated
- all potentiometers connected with use of POT12 scanners chain work in channel 1, as Continuous Controller 1 till 64



This is the configuration that can be recalled at any time during factory reset procedure (#797)