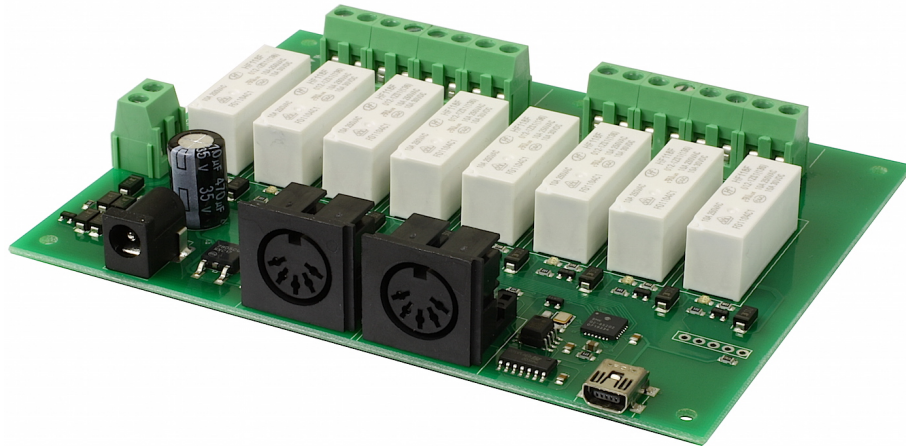# MIDI-RLY08 - MIDI Relay/Dimmer Output Module
Technical Documentation

Overview

The MIDI-RLY8 provides 8 relay outputs that respond to MIDI note or Control Change (CC) messages, these can be either mechanical or solid state relays. This small module is powered by a single 9V AC or 12V DC supply. (Using dimmers requires a 9VAC supply).

Each relay listens on its own MIDI channel, and can respond to up to 2 notes, and a CC message. The notes have a velocity threshold and turn a relay on when the note velocity is over that threshold, and off when the note is released. MIDI CC message have a value threshold and turn a relay on when the value is over that threshold, and off when under.

Operating Temperature

-40C to +70C

LED indication

Red LED's are mounted immediately next to each relay to indicate whether it is in a powered state (LED on).

There are also three LEDs on the board situated near the MIDI ports.

- The red LED indicates power to the board.

- The green LED indicates when the board is receiving MIDI data.

- The blue LED indicates when a USB connection is present.

Relays

Mechanical Relays up to 250VAC 8Amp.

Solid State Relays for phase controlled Dimming, 48VAC - 250VAC @ 5Amp (100mA min load).

Connections

Power can be connected to the module either from an isolated 9v AC transformer to the two pin screw terminals, or from a 9v AC adapter.

If you are not using the dimmer relays then you can use 12v DC instead, the module cannot be powered from the USB port. Do not use the same supply for more than one module.

Your MIDI stream should be connected to the MIDI IN port. A MIDI THRU port is provided that passes through all MIDI data that arrives at the MIDI IN port so that other equipment can be attached to the same bus further on.

The USB port is only used for configuration and does not appear as a midi port when plugged into a computer.
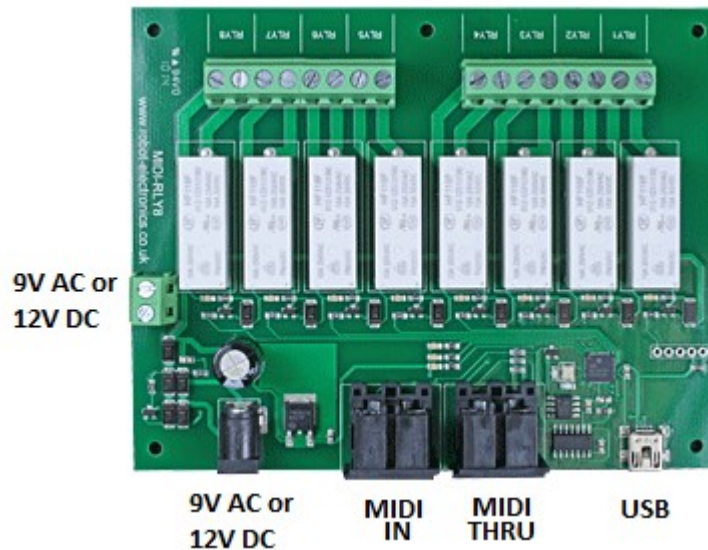
Getting Started

Out of the box the relays on the MIDI-RLY08 are configured to listen on MIDI channel 1, and each responds to a different note in the range of C4 – G4 (Relay 1 to C4, Relay 2 to C#4 ... Relay 8 to G4). The relays will turn on when a note on message is received and turn off when the note is released.

It is more likely that will want to configure the relays to respond to different notes on different midi channels, or to change one or more solid state relays to dimmer mode.

To configure the module connect it to a spare USB port on your computer and then download, and run, the MIDI-RLY08 setup program.

Which COM/ Serial port?

After plugging in the module in to a spare USB port it will appear as a serial port. You will want to know which port it has been assigned to. This will vary from system to system.

Windows:

Right click on the Start icon in your task bar and select "Device Manager". Now scroll down and open the "Ports (COM & LPT)" tab. You should see the USB serial port listed - COM4 in the example below.
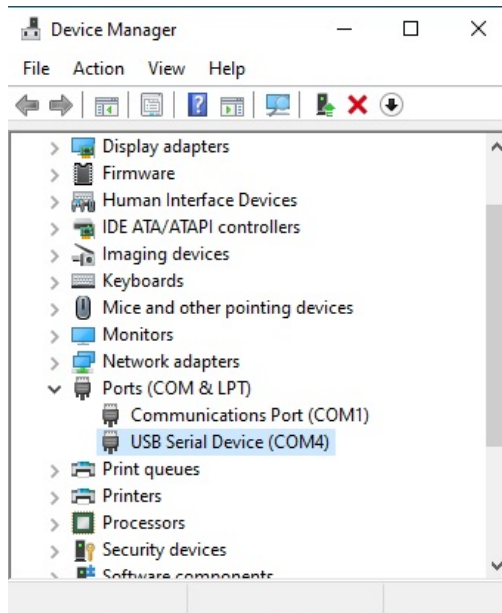
Linux:

To see a list of the available devices open a terminal window and run the following command:

ls /dev/serial/by-id/

Mac OS:

To see a list of the available devices open a terminal window and run the following command:

ls /dev/cu.*

Configuration

The MIDI-RLY08 is configured using the MIDI-RLY08 Setup java program. You will need java 17 or later installed to be able to run it.

[Download the midi-rly08.jar](#)

When you run the midi-rly08.jar you will see the following window.

Select the correct serial port for the module and it will find, and display, the display the software revision number, and settings. You can now set the individual option for each relay.

Once you have changed the options save them to the module by pressing the "Update" button.
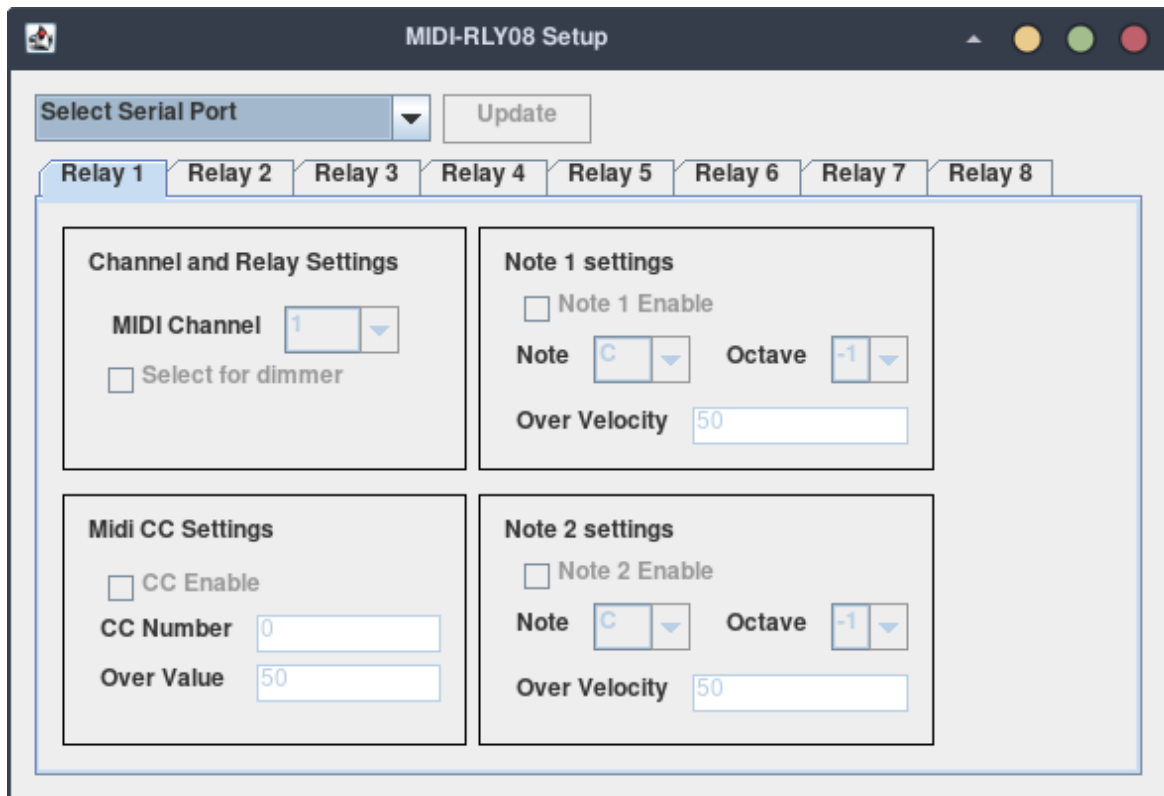
Channel and Relay settings

To select what midi channel the relay will work on simply select the appropriate midi channel from the drop down box. To select between dimmer and relay modes check the box labeled "Check for dimmer", when checked the relay will be in dimmer mode and when unchecked it will be in standard relay mode.

MIDI CC Settings

Here you can select what midi control change message that the relay will respond to. If the check box labeled "CC Enable" is checked then this relay will respond to MIDI CC message, if it is unchecked it will not.

The text box labeled "CC Number" is the control change number that this relay will respond to, MIDI control change numbers can be between 1 and 127.

The box labeled "Over Value" is the is the MIDI CC value at which the relay will turn on, values over this will turn the relay on and values under it will turn it off. If the relay is in dimmer mode this value is ignored, instead the brightness of the dimmer will be set in relation to the value sent.

Note one and note two settings

These allow you to select 2 different notes for the relay to respond to, relays will come on with a note on message and turn off when a note off message is received.

To enable or disable a note check the Enable box for that note. If this box is checked then the relay will respond to the selected note, if it is unchecked the note will be ignored.

The 2 drop down boxed labeled "Note" and "Octave" are used to select which note the relay will respond to.

The box labeled "Over Velocity" sets a note velocity threshold over which the relay will turn on, notes played under this velocity will not turn the relay on. If the relay is in dimmer mode this value will be ignored, instead the brightness of the dimmer will be set in relation to the velocity sent.

PCB Dimensions