

MIDI Driver Boards

Models DC-24 and DC-48

Instructions for Installation and Configuration

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1. Introduction

DesignTech Systems' DC-24 and DC-48 MIDI drivers are designed to convert MIDI signals from software packages such as Hauptwerk into DC outputs. Outputs can be either continuous, for driving indicator lamps, or pulsed for driving Stop Action Magnets (SAMs).

DC-24 can drive up to 24 indicators, or 12 SAMs. DC-48 can drive up to 48 indicators, or 24 SAMs.

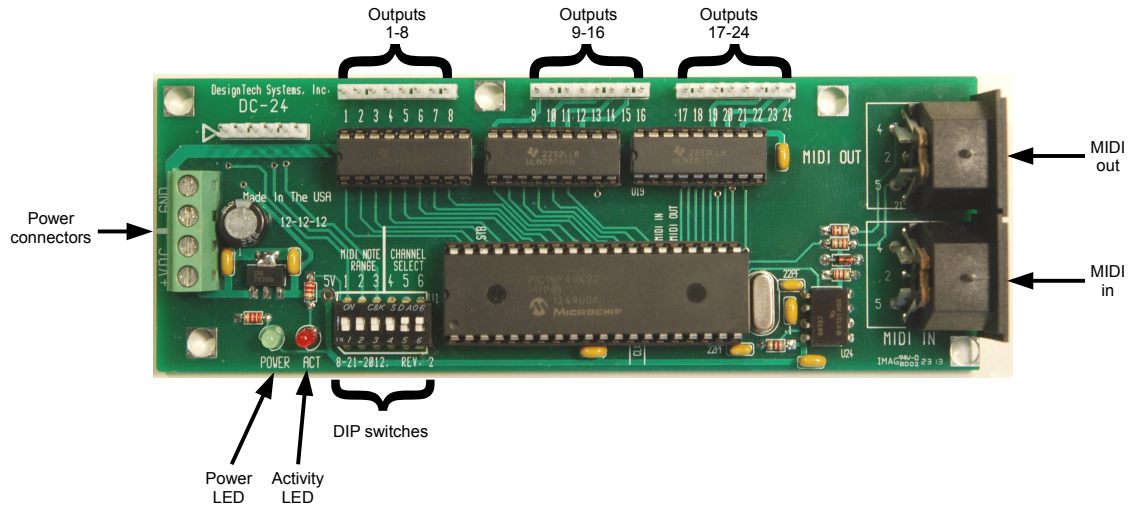
DC-24 is available in two versions, one for lamp mode and the other for magnet mode. On DC-48, the mode can be selected via a DIP switch.

In *lamp mode*, a MIDI “note on” message will cause an output line to turn on, and a “note off” message will cause the output line to turn off.

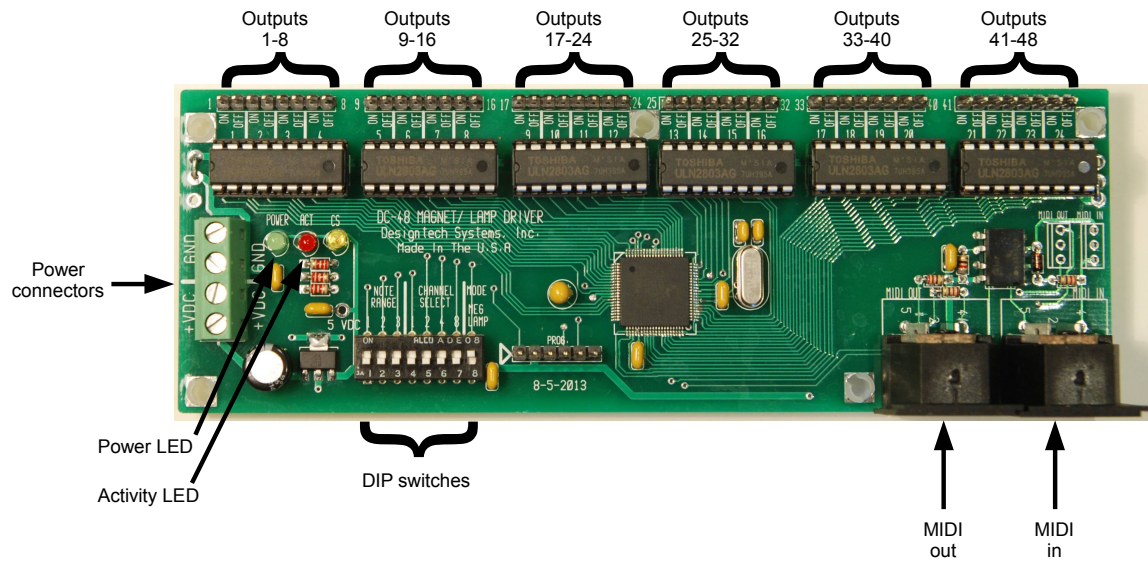
In *magnet mode*, a MIDI “note on” message will cause an output “on” magnet to be energized for 150ms, and a “note off” message will cause the corresponding “off” magnet to be energized for 150ms.

2. Connections

DC-24



DC-48



Power in: An 8v to 15v DC supply should be connected to the screw terminals provided, with the positive line to the right.

MIDI in: A standard MIDI-compliant input. MIDI “note on” and “note off” messages which match the channel and note range settings on the DIP switches will cause the outputs to be energized. Any other MIDI messages will be forwarded to the MIDI out port.

MIDI out: A standard MIDI output. Any MIDI information received which does not match the channel and note range set on the DIP switches is forwarded to MIDI out..

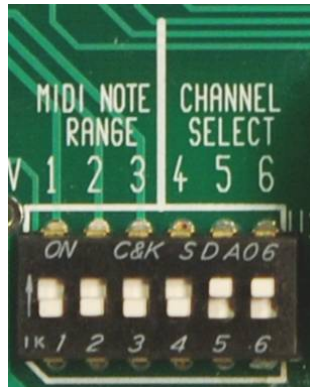
DIP switches: These are used for setting the MIDI channel, note range and (on DC-48) whether the unit operates in lamp or magnet mode. The DIP switches are described in detail below.

Power LED: Green LED which lights to show that the board is supplied with power.

Activity LED: Red LED which flashes whenever a MIDI message is received. If the incoming message is a “note on” or “note off” message which matches the channel and note range selected on the DIP switches, you will see a clearly visible flash of about 50ms. If any other MIDI message is received, this will be forwarded to the MIDI out port and the LED will give a much shorter “wink” of about 8ms.

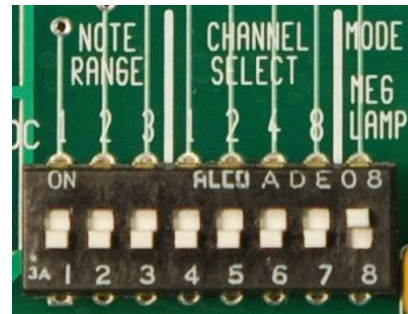
3. DIP switches

DC-24



Note range *MIDI channel*

DC-48



Note range *MIDI channel* *Mode select*

Note range switches

The settings for the note range switches are shown below:

DC-24

Switch			Note range (lamp mode)	Note range (magnet mode)
1	2	3		
			0 - 23	0 - 11
		X	24 - 47	12 - 23
	X		48 - 71	24 - 35
	X	X	72 - 95	36 - 47
X			96 - 120	48 - 59
X		X		60 - 71
X	X			72 - 83
X	X	X		84 - 95

DC-48

Switch			Note range (lamp mode)	Note range (magnet mode)
1	2	3	<i>DC-48</i>	<i>DC-48</i>
			0 - 47	0 - 23
X			48 - 95	24 - 47
	X		96 - 127	48 - 71
X	X			72 - 95
		X		96 - 120

MIDI channel switches

DC-24 can operate on MIDI channels 9 to 16. DC-48 can operate on any MIDI channel.

DC-24

Switch			MIDI channel
4	5	6	
			9
		X	10
	X		11
	X	X	12
X			13
X		X	14
X	X		15
X	X	X	16

DC-48

Switch				MIDI channel
4	5	6	7	
				1
X				2
	X			3
X	X			4
		X		5
X		X		6
	X	X		7
X	X	X		8
			X	9
X			X	10
	X		X	11
X	X		X	12
		X	X	13
X		X	X	14
	X	X	X	15
X	X	X	X	16

Mode switch (DC-48 only)

If this switch is off, the DC-48 will operate in magnet mode. If it is on, the board will operate in lamp mode.

4. Output wiring

DC-24 and DC-48 are normally supplied to work with a “pull to ground” (a.k.a. “common positive”) configuration. This means that you connect one side of each lamp or magnet to positive (typically +12v) and the board energizes an output by connecting the other side to ground. We can supply a “pull to positive” version of DC-48 to special order.

Each driver is rated at 50v and 500mA. The driver circuits incorporate freewheel diodes, so they can be safely connected to inductors (i.e. magnets). We recommend that the outputs for each card be connected to common via a slow-blow fuse of appropriate rating.

Lamp mode

In lamp mode, the lowest note value in the selected range will drive output 1, the next lowest will drive output 2, and so on.

Magnet mode

In magnet mode, the lowest note value in the selected range will drive output 1 for the “on” magnet and output 2 for the “off” magnet, the next lowest will drive output 3 for the “on” magnet and output 4 for the “off” magnet, and so on.

5. MIDI connections

We recommend using a high quality, recognized brand device to convert between MIDI and USB. We have found two midrange units to be reliable in many different configurations: the Cakewalk UM-1G and the M-Audio MIDIsport 2x2. Both are available from most music retailers. We have no connection with either company.

In theory, it is possible to “daisy-chain” any number of DC-24 and DC-48 cards together by connecting the MIDI out port of one to the MIDI in port of the next. However, for best performance, we recommend that no more than four decoder cards be connected together in this way. If you use more cards than this, we recommend use of a multi-way MIDI converter such as an M-Audio MIDIsport 4x4.