

VECM INTERFACE USER GUIDE 1.00

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Overview

The VecM Interface allows one to have complete control over the sound chip (AY-3-8912) inside of the Vectrex console via a MIDI connection.

The interface consists of two parts – a cartridge containing a custom program, and a hardware interface with a pre-programmed microcontroller.

The custom program should be loaded onto a cartridge by the user. An option for a custom-programmable include Richard Hutchinson's VecFlash product, which can be found at <http://vectrex.biz/>. Users may prefer to make a custom cartridge for the Vectrex of their own accord.

Setup

1. Connect the VecM hardware interface to the video game console via a 9-pin extension cable (available separately).
2. Connect the MIDI output from your host computer or other MIDI-enabled device to the VecM hardware interface.
3. Insert the VecM cartridge (supplied by the user) into the video game console.
4. MIDI channels 1 to 3 are mapped to AY-3-8910 channels 1 to 3.
5. Turn on the video game console. You should hear a start up sound once the interface is ready to be used.

VecM MIDI Quick Reference

See the following sections for more information.

MIDI channels 1 to 3 are mapped to AY-3-8912 channels 1 to 3.

AY-3-8912 PSG

Global Control

<u>Parameter</u>	<u>CC</u>	<u>Data Range</u>
Envelope Speed - Coarse Value	17	128
Envelope Speed - Medium Value	18	128
Envelope Speed - Fine Value	19	4
Envelope Shape	20	16
Enable Extra Noise Mode for Channel 1	78	2

Voice Control

<u>Parameter</u>	<u>CC</u>	<u>Data Range</u>
Enable Pulse	14	2
Enable Noise	15	2
Enable Envelope Generator	16	2
Set Volume	11	16

MIDI Mapping – AY-3-8912

The AY-3-8912 PSG chip contains three channels that are mapped to MIDI channels 1 to 3. Each channel can have a pulse wave enabled and a global noise source enabled. Additionally, there is a global volume envelope generator that can be used with any channel.

The Vectrex will respond to the following MIDI CC messages as well as note on, note off and pitch bend events.

AY-3-8912: Global Parameters

Envelope Speed - Coarse Value **CC17** **Any Channel**

128 values over the range of 0 to 127. Sets the most coarse data value for the envelope generator speed.

Envelope Speed - Medium Value **CC18** **Any Channel**

128 values over the range of 0 to 127. Sets the medium data value for the envelope generator speed.

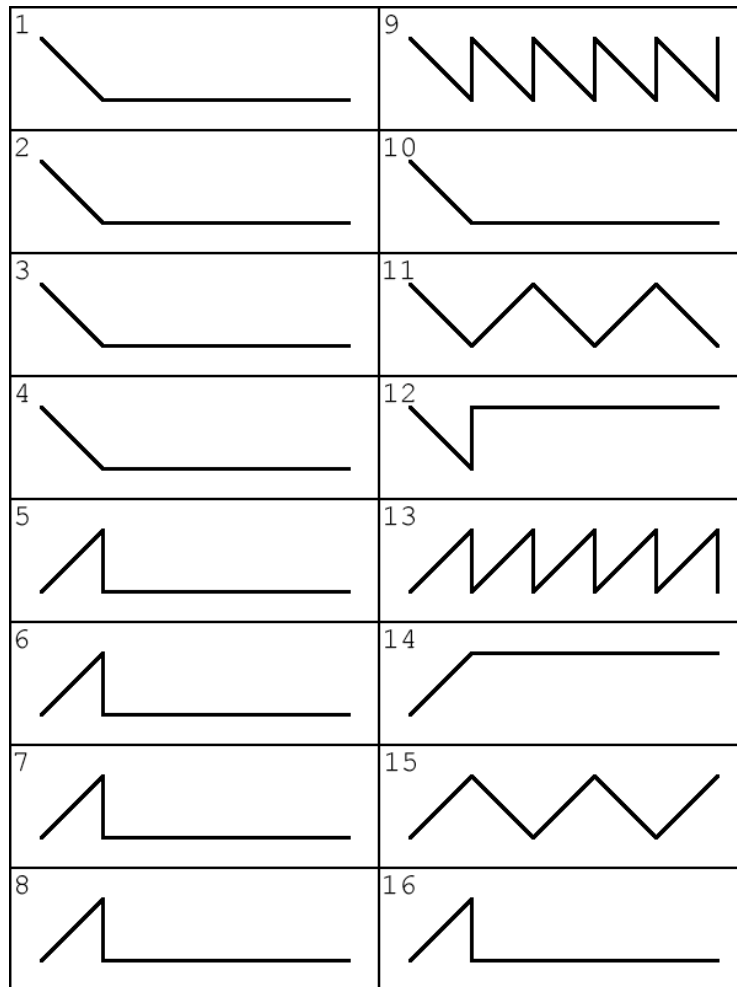
Envelope Speed - Fine Value **CC19** **Any Channel**

128 values over the range of 0 to 127. Sets the fine data value for the envelope generator speed.

Envelope Shape**CC20****Any Channel**

16 values of the range of 0 to 127. Selects one of eight envelope generator shapes.

The sixteen available shapes are:

**Enable Extra Noise Mode for Channel 1 CC78****Any Channel**

2 values over the range of 0 to 127. Enables or disables noise mode for channel 1. A CC value of less than 64 disables the extra noise mode for channel 1. A CC value of equal to or greater than 64 enables the extra noise mode for channel 1. When enabled, the extra noise mode will allow channel 1 to play an independent noise sound. The period (frequency) of the extra noise is set by the MIDI pitch of a note-on event.

AY-3-8912: Voice Parameters

Enable Pulse

CC14

Channel Specific

2 values over the range of 0 to 127. A CC value of less than 64 disables the pulse wave for a given channel. A CC value of equal to or greater than 64 enables the pulse wave for a given channel.

Enable Noise

CC15

Channel Specific

2 values over the range of 0 to 127. A CC value of less than 64 disables the global noise wave for a given channel. A CC value of equal to or greater than 64 enables the global noise wave for a given channel. The pitch will determine the period (frequency) of the global noise source. Note that there is only one global noise source that is shared between all channels.

Enable Envelope Generator

CC14

Channel Specific

2 values over the range of 0 to 127. A CC value of less than 64 disables the global envelope generator for a given channel. A CC value of equal to or greater than 64 enables the global envelope generator for a given channel. Note that there is only one global envelope generator that is shared between all channels.

Set Volume

CC11

Channel Specific

16 values over the range of 0 to 127. Sets the volume of a given channel. Can be used to create envelopes.