

For FMDrive 1.2 usage.
Prior to the release of the controller only version of FMDrive (when GENMDM v103 will be out)
You can still access the console via GENMDM with certain limitations.
Every lines marked in red are not supported by the native FMDrive (More infos in the FMDrive manual).
Some informations are corrected and some GENMDM code needs to be corrected.
Once the new firmware (v103) will be ready, FMDrive will support all the features and will be available as a "controller only version" without audio engine.
The currently unsupported CCs can however be accessed by external control without problem.

FMDrive will send all assigned MIDI CC's on patch loading or patch change to the selected MIDI OUT channel. However FMDrive do not transfers MIDI NOTES.
So the connection in your DAW should be:

For example to control over YM2612 Channel 1

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1 MIDI TRACK >> (NOTES DATA) SEND to CH1 >> GENMDM
1 VST TRACK (With FMDrive loaded)>> CC AUTOMATION SEND to ch1 >>
GENMDM
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And so on...

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GenMDM Firmware v102 - Quick Reference MIDI Mapping by little-scale
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<http://www.little-scale.blogspot.com.au/>
seb.tomczak@gmail.com

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Special thanks to: Freezedream, Lazerbeat, Aly James, Tanikugu, Paul
Slocum, Christian Haines, Celsius, 10k, Dot.AY
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Firmware v102 Version Information:
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- * Native MIDI 5 pin DIN support via user-end hardware modification
- * This is via the UART RX PIN, found on digital pin 7 of the Teensy board
- * More cohesive handling of SSG-EG in terms of mapping - every OP and CH is catered for
- * Storage and recall of 15 different RAM-based instruments for VERY quick instrument changes
- * Reduced the sample storage ROM area by 2KB
- * Simplified and restructured sample code and sample storage ROM area
- * The current samples are just some 808 samples - looking to add user-assignable samples

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Firmware v101 Version Information:
* Added: control of YM2612 FM voice 3 mode
* Added: control of SSG-EG mode
* Added: control of test registers 0x20, 0x27, 0x2A and 0x2C
* Trimmed code
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MIDI Channel Sound Chip Mapping
* YM2612 FM sound chip is mapped to MIDI channels 1 - 6.
* SN76489 PSG sound chip is mapped to MIDI channels 7 - 10.
* YM2612 FM voice 3 special mode is mapped to MIDI channels 11 - 13.
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YM2612 FM Sound Chip Mapping

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Parameter                                CC          Data Range
* LFO Enable (Global)                    74          2
* FRQ LFO Speed                           1          8
* Pitch Transposition                     85          128
* Octave Division                         84          128
* PAL / NTSC Tuning                       83          2
* Voice 3 Special Mode                    80          2
* Test Register 0x27 Lowest Six Bits      92          64
* Test Register 0x27 Highest One Bit     93          2
* Test Register 0x20 Lowest Four Bits     94          16
* Test Register 0x20 Highest Four Bits    95          16
* Test Register 0x2C Lowest Four Bits     96          16
* Test Register 0x2C Highest Four Bits    97          16
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Special Mode (buggy right now, it needs firmware rewriting and
optional velocity control)
* When Voice 3 is in Special Mode, each operator of Voice 3 has its
own frequency
* In this case, the frequency for each is controlled using MIDI ch
3, 11, 12 and 13
* In this case, the TL / volume of each operator is controlled via
velocity

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CH11 = M2( bug with TL M1 control)
CH12 = M1
CH13=  C1
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Channel / Voice Control                    CC          Data
* Preset Instrument Setting Store in RAM  6           16
* Preset Instrument Setting Recall from RAM 9          16
* Frequency                               Note Number 128
* Pitch Bend Amount                       81          18
* FM Algorithm                             14          8
* FB FM Feedback                           15          8
* Stereo Configuration                     77          4
* AMS Amplitude Modulation Level          76          8
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* PMS Frequency Modulation Level	75	8
(SSG works well but cannot be accessed via FMDrive, a MIDI translation needs to be done)		
* SSG-EG Operator 1 On and Setting	90	16
* SSG-EG Operator 2 On and Setting	91	16
* SSG-EG Operator 3 On and Setting	92	16
* SSG-EG Operator 4 On and Setting	93	16

* The 8 FM algorithms are as follows: **corrected**

* Algorithm 00: OP1 (m) --> OP2(m) --> OP3 (m) --> OP4 (c)

* Algorithm 01: OP1 (m) && OP2 (m) --> OP3 (m) --> OP4 (c)

* Algorithm 03: ((OP3 (m) --> OP2 (m)) && OP1 (m)) --> OP4 (c)

* Algorithm 02: (OP1 (m) && (OP2 (m) --> OP3 (m))) --> OP4 (c)

* Algorithm 03: ((OP1 (m) --> OP2 (m)) && OP3 (m)) --> OP4 (c)

* Algorithm 04: OP1 (m) --> OP2 (c) && OP3 (m) --> OP4 (c)

* Algorithm 05: OP1 (m) --> (OP2 (c) && OP3 (c) && OP4 (c))

* Algorithm 06: OP1 (m) --> OP2 (c) && OP3 (c) && OP4 (c)

* Algorithm 07: OP1 (c) && OP2 (c) && OP3 (c) && OP4 (c)

REF:

OP1 = M1
 OP2 = M2
 OP3 = C1
 OP4 = C2

Operator Control	CC	Data Range
* TL Total Level OP 1	16	128
* TL Total Level OP 2	17	128
* TL Total Level OP 3	18	128
* TL Total Level OP 4	19	128
* MUL Multiple OP 1	20	16
* MUL Multiple OP 2	21	16
* MUL Multiple OP 3	22	16
* MUL Multiple OP 4	23	16
* DT Detune OP 1	24	8
* DT Detune OP 2	25	8
* DT Detune OP 3	26	8
* DT Detune OP 4	27	8
* KS Rate Scaling OP 1	39	4
* KS Rate Scaling OP 2	40	4
* KS Rate Scaling OP 3	41	4
* KS Rate Scaling OP 4	42	4
* AR Attack Rate OP 1	43	32
* AR Attack Rate OP 2	44	32
* AR Attack Rate OP 3	45	32
* AR Attack Rate OP 4	46	32
* DR First Decay Rate OP 1	47	32
* DR First Decay Rate OP 2	48	32
* DR First Decay Rate OP 3	49	32
* DR First Decay Rate OP 4	50	32
(D2R do not work on GENMDM because of an implementation mistake and will be corrected in v103)		
* D2R Secondary Decay Rate OP 1	51	16
* D2R Secondary Decay Rate OP 2	52	16
* D2R Secondary Decay Rate OP 3	53	16

* D2R Secondary Decay Rate OP 4	54	16
* SL Secondary Amplitude Level OP 1	55	16
* SL Secondary Amplitude Level OP 2	56	16
* SL Secondary Amplitude Level OP 3	57	16
* SL Secondary Amplitude Level OP 4	58	16
* RR Release Rate OP 1	59	16
* RR Release Rate OP 2	60	16
* RR Release Rate OP 3	61	16
* RR Release Rate OP 4	62	16
* AM Amplitude Modulation Enable OP 1	70	2
* AM Amplitude Modulation Enable OP 2	71	2
* AM Amplitude Modulation Enable OP 3	72	2
* AM Amplitude Modulation Enable OP 4	73	2

DAC Control (MIDI Channel 6)	CC	Data
* DAC Enable	78	2
* DAC Direct Data	79	128
* DAC Sample Pitch Speed	86	128
* DAC Sample Oversample	88	16
* DAC Noise / Custom Wave Mode	89	2
* Custom Wave Byte 1 of 14	100	128
* Custom Wave Byte 2 of 14	101	128
* Custom Wave Byte 3 of 14	102	128
* Custom Wave Byte 4 of 14	103	128
* Custom Wave Byte 5 of 14	104	128
* Custom Wave Byte 6 of 14	105	128
* Custom Wave Byte 7 of 14	106	128
* Custom Wave Byte 8 of 14	107	128
* Custom Wave Byte 9 of 14	108	128
* Custom Wave Byte 10 of 14	109	128
* Custom Wave Byte 11 of 14	110	128
* Custom Wave Byte 12 of 14	111	128
* Custom Wave Byte 13 of 14	112	128
* Custom Wave Byte 14 of 14	113	128

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SN76489 PSG Sound Chip Mapping

* Global Control	CC	Data Range
* Pitch Transposition	85	128
* PAL / NTSC	83	2

Noise Channel Control

	Type
* C and C#	High Frequency; Periodic
* D and D#	Medium Frequency; Periodic
* E	Low Frequency; Periodic
* F	High Frequency; Noise
* F#	Medium Frequency; Noise
* G and G#	Low Frequency; Noise
* A and A#	Channel 9; Periodic
* B	Channel 9; Noise

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