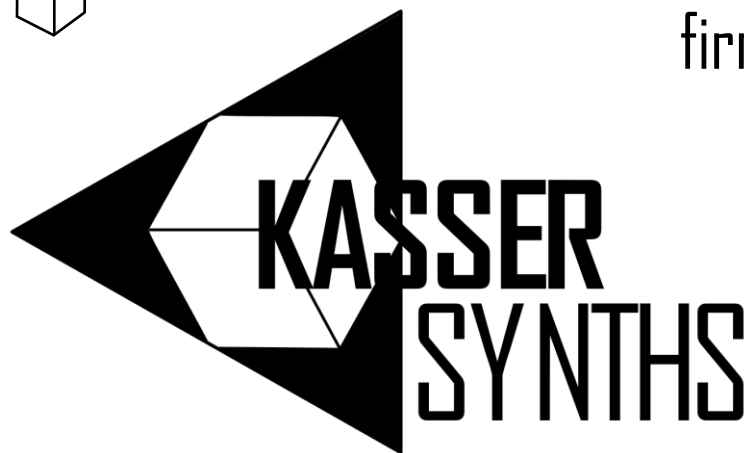


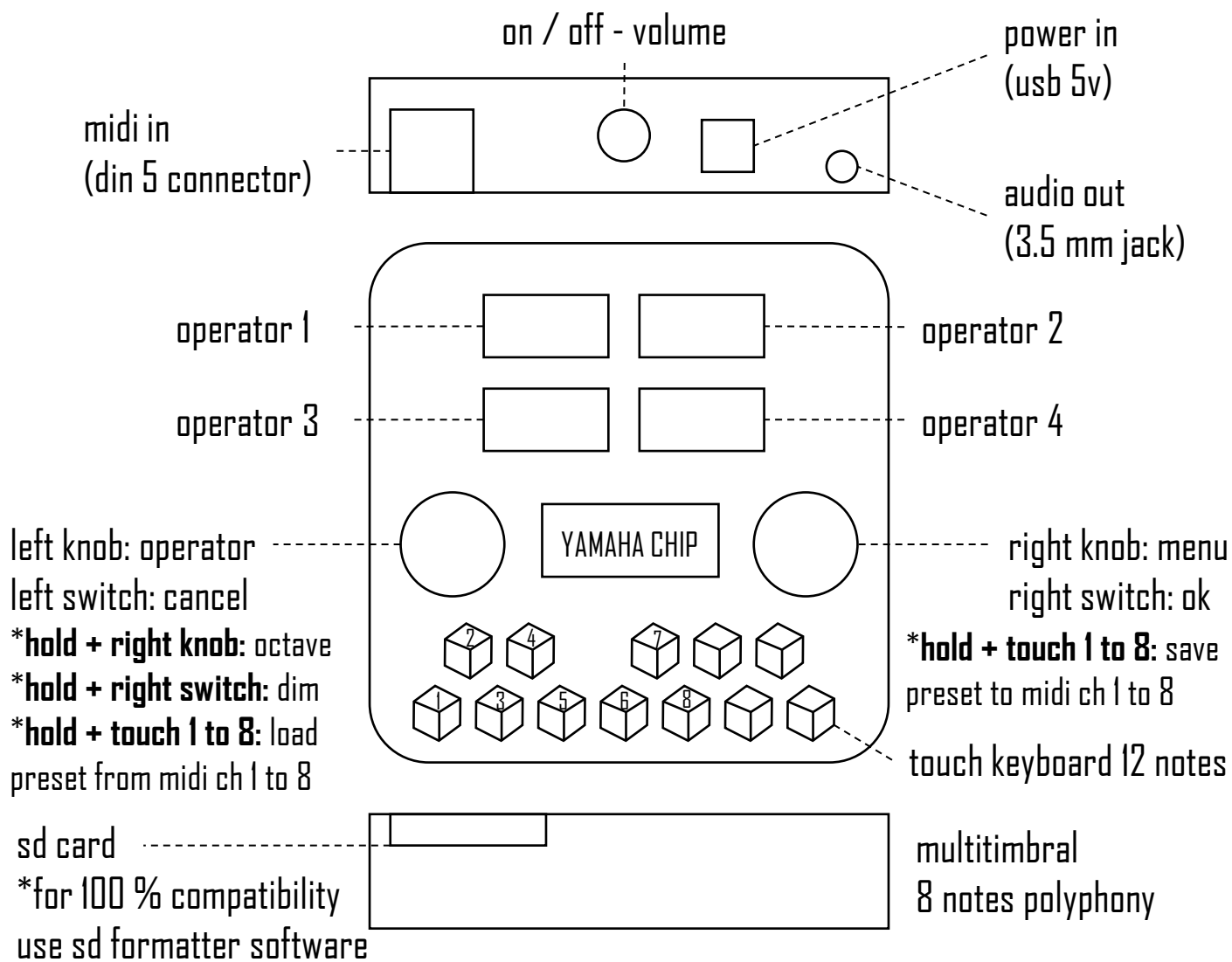
# dafm synth ARCADE ym2151



## user quick guide firmware v 1.98



THANKS for joining the DAFM Synth WAVE



## menu 1 feedback, algorithm & velocity control

### 1.1 feedback left knob

degree of modulation of operator 1 to itself

### 1.1 algorithm right knob

modulators are the operators that modulate the carriers carriers are the operators you can hear

### 1.2 velocity right knob

on/off midi velocity controlled operators

## menu 3 adsr envelope

### 3.1 attack rate left knob

### 3.1 total level right knob

### 3.2 decay rate left knob

### 3.2 secondary total level right knob

### 3.3 secondary decay rate left knob

### 3.3 release rate right knob

### 3.4 rate or key scaling right knob

## menu 5 low frequency oscillator (lfo)

### 5.1 phase modulation depth right knob

### 5.2 amplitude modulation depth right knob

### 5.3 phase and amplitude modulation waveform right knob

these submenus are selected with the left knob



## menu 2 frequency ratio

### 2.1 frequency multiplier right knob

operator's frequency multiplier

### 2.2 frequency fine detune left knob

fine detune of selected frequency multiplier

### 2.2 frequency coarse detune 2 right knob

coarse detune of selected frequency multiplier

\*different frequency ratios between carrier and its modulator will produce different overtones

## menu 4 low frequency oscillator (lfo)

### 4.1 lfo frequency left knob

global for 4 operators

### 4.1 frequency modulation sensitivity right knob

global for 4 operators

### 4.2 amplitude modulation on/off left knob

for every individual operator

### 4.2 amplitude modulation sensitivity right knob

global for 4 operators

## menu 6 fm patches and midi channels

### 6.1 edit midi ch/bank 0 preset selection left knob

### 6.2 save preset in midi ch selection left knob

\*number: midi channel **number**: midi bank 0 preset

\*number on top shows the preset that is being edited

### 6.3 load 8 presets from sd card to midi channels

\*presets need to be named as patch0x.dmp (x from 1 to 8)

### 6.4 save all 8 presets from midi channels to sd card

\*presets need to be renamed from patch0x.DMP to patch0x.dmp (x from 1 to 8) to load correctly on deflemask software

# midi cc implementation chart

## global control

| parameter                  | cc | data range |
|----------------------------|----|------------|
| lfo frequency              | 1  | 8          |
| phase modulation depth     | 28 | 64         |
| amplitude modulation depth | 29 | 64         |
| lfo waveform               | 30 | 4          |
| noise enable (ch 8)        | 78 | 2          |
| noise frequency (ch 8)     | 79 | 32         |

## channel voice control

| parameter                        | cc | data range |
|----------------------------------|----|------------|
| pitch bend amount                | 81 | 12         |
| fm algorithm                     | 14 | 8          |
| fm feedback                      | 15 | 8          |
| stereo configuration             | 77 | 4          |
| amplitude modulation sensitivity | 76 | 4          |
| frequency modulation sensitivity | 75 | 8          |

## operator control

| parameter             | cc | data range |
|-----------------------|----|------------|
| total level op1       | 16 | 128        |
| total level op2       | 17 | 128        |
| total level op3       | 18 | 128        |
| total level op4       | 19 | 128        |
| freq multiplier op1   | 20 | 16         |
| freq multiplier op2   | 21 | 16         |
| freq multiplier op3   | 22 | 16         |
| freq multiplier op4   | 23 | 16         |
| detune (fine) op1     | 24 | 7          |
| detune (fine) op2     | 25 | 7          |
| detune (fine) op3     | 26 | 7          |
| detune (fine) op4     | 27 | 7          |
| detune 2 (coarse) op1 | 82 | 4          |
| detune 2 (coarse) op2 | 83 | 4          |
| detune 2 (coarse) op3 | 84 | 4          |
| detune 2 (coarse) op4 | 85 | 4          |

## operator control

| parameter                 | cc | data range |
|---------------------------|----|------------|
| attack rate op1           | 43 | 32         |
| attack rate op2           | 44 | 32         |
| attack rate op3           | 45 | 32         |
| attack rate op4           | 46 | 32         |
| decay rate op1            | 47 | 32         |
| decay rate op2            | 48 | 32         |
| decay rate op3            | 49 | 32         |
| decay rate op4            | 50 | 32         |
| secondary decay rate op1  | 51 | 16         |
| secondary decay rate op2  | 52 | 16         |
| secondary decay rate op3  | 53 | 16         |
| secondary decay rate op4  | 54 | 16         |
| secondary total level op1 | 55 | 16         |
| secondary total level op2 | 56 | 16         |
| secondary total level op3 | 57 | 16         |
| secondary total level op4 | 58 | 16         |



# midi cc implementation chart

## operator control

| parameter                       | cc | data range |
|---------------------------------|----|------------|
| release rate opl                | 59 | 16         |
| release rate op2                | 60 | 16         |
| release rate op3                | 61 | 16         |
| release rate op4                | 62 | 16         |
| amplitude modulation on/off opl | 70 | 2          |
| amplitude modulation on/off op2 | 71 | 2          |
| amplitude modulation on/off op3 | 72 | 2          |
| amplitude modulation on/off op4 | 73 | 2          |

## operator control

| parameter               | cc | data range |
|-------------------------|----|------------|
| rate or key scaling opl | 39 | 4          |
| rate or key scaling op2 | 40 | 4          |
| rate or key scaling op3 | 41 | 4          |
| rate or key scaling op4 | 42 | 4          |



## midi bank 0 and bank 1 presets

### videogame preset

|                         |   |
|-------------------------|---|
| <b>street fighter 2</b> | <b>0:</b> bright piano (ken) <b>1:</b> lead (ryu) <b>2:</b> eorgan (guile) <b>3:</b> horn (guile) <b>4:</b> epiano (credit) <b>5:</b> lead (title)  |
| <b>space harrier</b>    | <b>6:</b> epiano (theme) <b>7:</b> epiano 2 <b>8:</b> bass  |
| <b>afterburner 2</b>    | <b>9:</b> ebass (final take off) <b>10:</b> wood percussion (afterburner) <b>11:</b> distorted bass (redout)  |
| <b>ghouls'n ghosts</b>  | <b>12:</b> eorgan (credit) <b>13:</b> organ (stage 1) <b>14:</b> percussion <b>15:</b> mistery piano  |
| <b>final fight</b>      | <b>16:</b> bass (opening) <b>17:</b> synth lead <b>18:</b> organ <b>19:</b> bass (round 1) <b>20:</b> horn <b>21:</b> synth guitar  |
| <b>outrun</b>           | <b>22:</b> synth (magical shower) <b>23:</b> synth (passing breeze) <b>24:</b> epiano <b>25:</b> epiano 2 <b>26:</b> epiano 3 (splash wave) <b>27:</b> ekalimba (splash wave) <b>28:</b> epiano 4 <b>29:</b> epiano 5 |
| <b>r-type</b>           | <b>30:</b> eguitar 1 (start 1st stage) <b>31:</b> eguitar 2 <b>32:</b> string   |
| <b>shinobi</b>          | <b>33:</b> epiano 1 (bgm) <b>34:</b> epiano 2 <b>35:</b> synth  |
| <b>double dragon</b>    | <b>36:</b> eguitar (industrial area) <b>37:</b> horn <b>38:</b> drum 1 <b>39:</b> drum 2 <b>40:</b> drum 3 <b>41:</b> bass (opening)  |

### videogame preset

|                         |   |
|-------------------------|---|
| <b>golden axe</b>       | <b>42:</b> synthbass (deathadder) <b>43:</b> drum 1 (wilderness) <b>44:</b> synthbass 2 (deathadder) <b>45:</b> drum 2 <b>46:</b> drum 3 (wilderness)   |
| <b>altered beast</b>    | <b>47:</b> drum 1 (round 1) <b>48:</b> drum 2 <b>49:</b> drum 3 <b>50:</b> epiano <b>51:</b> kalimba <b>52:</b> bass <b>53:</b> metal <b>54:</b> klang  |
| <b>marble madness</b>   | <b>55:</b> pad (level1) <b>56:</b> kalimba <b>57:</b> percussion (level2) <b>58:</b> string 1 <b>59:</b> bass <b>60:</b> string 2   |
| <b>forgotten worlds</b> | <b>61:</b> epiano (round 1) <b>62:</b> horn   |
| <b>fantasy zone 2</b>   | <b>63:</b> drum 1 (10years) <b>64:</b> drum 2 <b>65:</b> synth <b>66:</b> percussion 1 (cholacorai) <b>67:</b> percussion 2 <b>68:</b> drum 3 (gumbatight) <b>69:</b> eguitar   |
| <b>ninja spirit</b>     | <b>70:</b> pad 1 (round 1) <b>71:</b> pad 2 <b>72:</b> pad 3  |
| <b>midi channels</b>    | <b>73 (1):</b> bass (street fighter 2 - ryu) <b>74 (2):</b> bass (outrun - magical shower) <b>75 (3):</b> epiano (outrun - last wave) <b>76 (4):</b> lead synth (afterburner 2 - afterburner) <b>77 (5):</b> drone (final fight- round 1) <b>78 (6):</b> percussion (ghouls'n ghosts - stage 1) <b>79 (7):</b> tom (spaceharrier - theme) <b>80 (8):</b> snare (spaceharrier - theme) |

bank 1 corresponds to the sd card. presets have to be saved in the sd card as **instrxxx.dmp** where xxx goes from **000 to 127**. program change midi messages can load these presets in the midi channel selected. presets value range is from 0 to 127

