MicroMonsta 2
User manual
1.0

Table of contents

Introduction

Overview

MicroMonsta 2 is a dual polyphonic synthesizer featuring :

- 2 x 6 voices of polyphony

- 3 oscillators, 1 multimode filter, 3 envelopes, 3 LFOs, 10 modulation slots and 2 operators per voice (lag and mult)

- 12 « analog » oscillator types + 4 FM-able oscillators for OSC1

- 12 « analog » oscillator types + 8 multisampled wavetables for OSC2 and OSC3 (FM source)

- 8 filter types with FM

- Per voice and per oscillator detuning options for analog character

- Deep modulation matrix

- Delay + reverb

MicroMonsta 2 can be used in 3 different ways :

- Monotimbral : As a 12-voice polyphonic synthesizer

- Bitimbral : As 2 different 6-voice polyphonic synthesizer (on 2 different MIDI channels)

- In combi mode, where you can stack, split or mult the 2 programs

You get 300 programs slots + 100 combi slots to save your sound creations.

The 100 combi slots also save their 2 sound programs in separate program slots (so you get 300 + 2 x 100 = 500 program slots in total).

Front panel
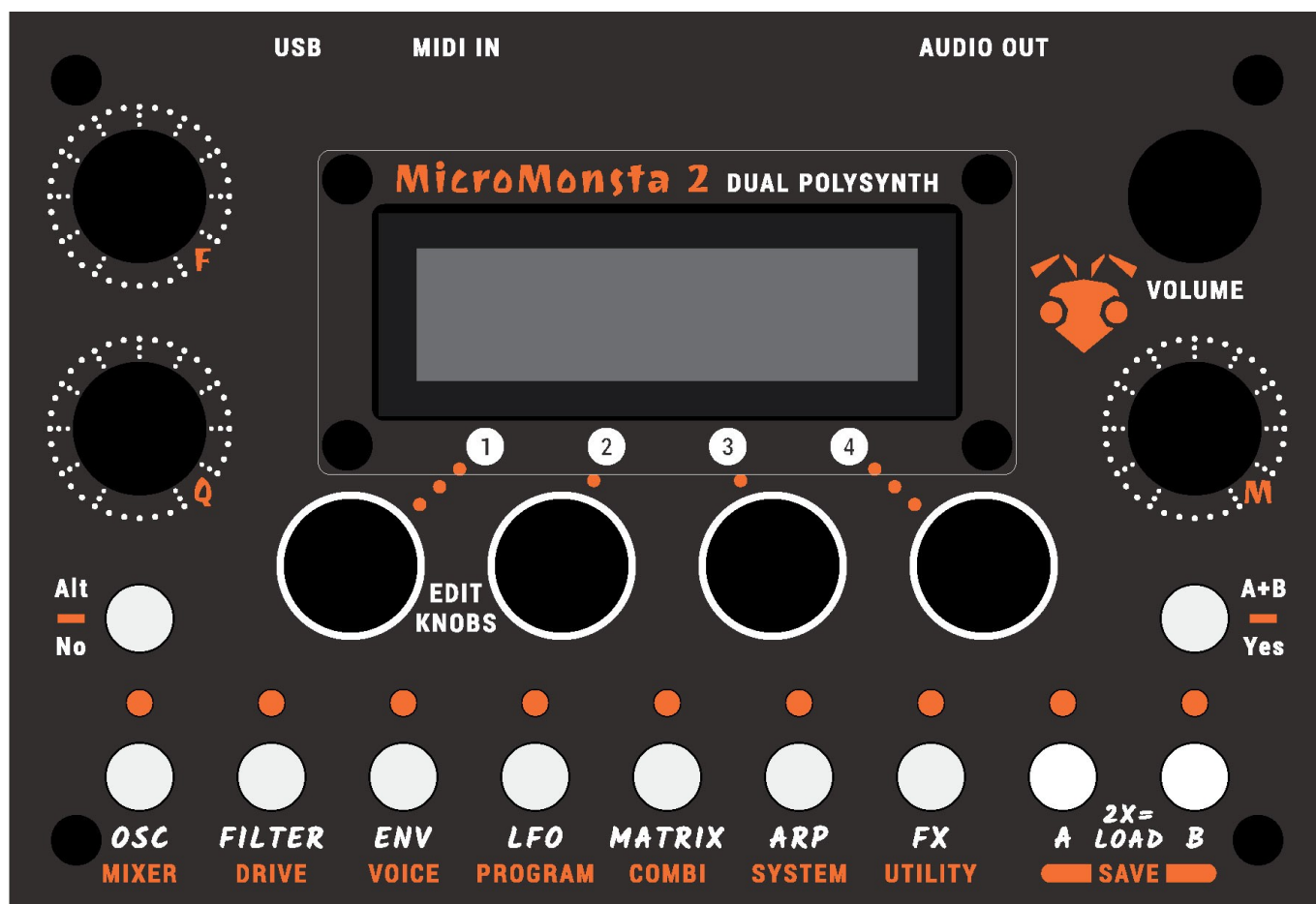
You get :

- 2x16 characters LCD screen, white on black

- 3 assignable pots for live edits

- 1 volume pot

- 4 edit encoders

- 9 pushbuttons with their associated LEDs

- 2 No/Yes pushbuttons

Rear Panel

On the rear panel :

- USB B port for power and USB MIDI

- 3.5mm stereo jack MIDI input (MIDI A Standard)

- 3.5mm stereo output (line out / headphones out)

Power considerations

MicroMonsta 2 is powered via its USB B port. Several options are thus available :

- It can be powered with any USB power supply capable of outputting 500mA @ 5V DC (any modern USB power supply should meet these specifications, and you probably have half a dozen of those in your drawers)

- It can be powered via a USB port on a computer
  A drawback of this method is that a ground loop can be created which can cause hum in the audio output. To avoid such a ground loop :

  - Use a USB isolator between the computer and MicroMonsta 2

  - Use a stereo line level DI with ground lift switch between MicroMonsta 2 and the mixer

- It can be powered with a USB power bank for extra mobile use

Using MicroMonsta 2

Currently edited program

MicroMonsta 2 can play up to 2 sounds at the same time – loaded into Programs A and B.
Only 1 Program can be edited at a time, and it can be selected by pressing its corresponding A or B button (B button will be disabled in monotimbral mode).

Currently edited program always has its LED lit as an all time indication.

Navigating pages

Synthesis parameters are mapped across different sections accessed by pressing a button on the front panel.

When a section has several pages, you access them by successively pressing the same button several times. When you are on the last page, it returns to the first one.

For example, pressing OSC several times will make you travel the following pages: OSC1 > OSC2 > OSC3 > OSC1 > OSC2 etc.

Some sections (the ones labelled in orange) are accessed by long-pressing the corresponding button. For example long-pressing OSC will take you to the Mixer page.

Some pages can have sub-pages accessed by turning encoder 1 (all the orange labelled sections for example)

All this may seem complicated while reading, it is however quite fluent once you have the gear in front of you.

Editing parameters

Encoders

The LCD screen provides up to 4 parameters to edit at the same time.
Use encoders 1-4 to change their corresponding parameter value.

Knobs

The 3 knobs F, Q and M are factory mapped to (respectively) filter frequency, resonance and mod knob (accessible in the mod matrix).

They can be remapped either globally or per preset to any synthesis parameter.

Modes

MicroMonsta 2 can be globally set to 3 different modes that can be changed anytime in SYSTEM menu. They affect the number of available sounds MicroMonsta 2 can play at the same time and the way it responds to incoming MIDI signals

Monotimbral

In monotimbral mode, you can play 1 sound at the same time, with 12-voice polyphony.
Sending a MIDI bank change / program change on MicroMonsta 2 MIDI channel will change the currently selected program.

Bitimbral

In bitimbral mode, you can play 2 sounds at the same time on 2 different MIDI channels, each sound having 6 voices polyphony.

Program A is accessed on main MIDI channel (the one set in SYSTEM menu), while Program B is accessed on main MIDI channel + 1.

By sending a MIDI bank change / program change on one of those 2 MIDI channels, you can change the preset loaded in Program A or B.

This mode is ideal when used with an external sequencer.

Combi

In combi mode, you can combine up to 2 different programs in 4 different ways

- only A : same as monotimbral mode

- stack AB : 2 sounds played at the same time on the same MIDI channel

- split AB : 2 sounds at the same time on the same MIDI channel, but the keyboard is split

- mult AB : 2 sounds at the same time on 2 different MIDI channels (same as bitimbral mode)

By sending a MIDI program change in combi mode, you load an entire combi containing the combi parameters AND both programs A and B.

In combi mode, it is not possible to change Program A or B independantly by sending a program change message.

Presets

Load a preset

To load a preset into Program A or B, **double Tap A or B button**

```
A:StarDust  LOAD
[lead]      P065
```

- Use encoder 4 to select a preset to load into program slot

Press Yes to confirm, or press No to return to the previously edited sound.

Save a preset

To Save Program A or B into a preset slot, **hold A or B button**

```
[S]tarDust  SAVE
BybyePgm    P054
```

1. Selects a character to edit
2. Edit character
3. Generate a random name
4. Selects the destination preset slot

Press Yes to confirm, No to cancel the save operation

Load a combi (combi mode only)

A combi contains the combi parameters and the 2 program parameters.
To load a combi, **double Tap Yes (A+B)** Button

```
A:MadBox     LOAD
B:OffLuck    C11
```

- Use encoder 4 to select a combi to load

Press Yes to confirm, No to load the previously edited Combi

Save a combi (combi mode only)

Hold A or B button (it doesn't matter) : you first enter the naming screen :

```
A:[B]igBrute NAM
B:MuchBug     A/B
```

1. Selects a character to edit

2. Edit character

3. Generate a random name

4. Selects Program A or B

Press Yes to enter the Save Combi menu, it displays the combi target destination, as well as the name of both programs to be overwritten :

```
A:OldName    SAVE
B:BigGamer    C22
```

- Use encoder 4 to select the destination

Press Yes to confirm, No to cancel the save operation

Quick Load

When you are <u>in Quick Edit screen</u> :

In Monotimbral or Bitimbral mode

Hold No to quickly Load Preset N-1
Hold Yes to quickly Load Preset N+1

The preset will be loaded into the active Program slot

## In Combi mode

Hold No to quickly Load Combi N-1
Hold Yes to quickly Load Combi N+1

Synthesis overview

Here is a very basic overview of the synthesis engine of MicroMonsta 2.
Not shown : all the LFOs, ENV3, the modulation matrix and all the other stuff that can really render this drawing really really complex.

As you can see, the base stuff is pretty standard substractive synthesis.
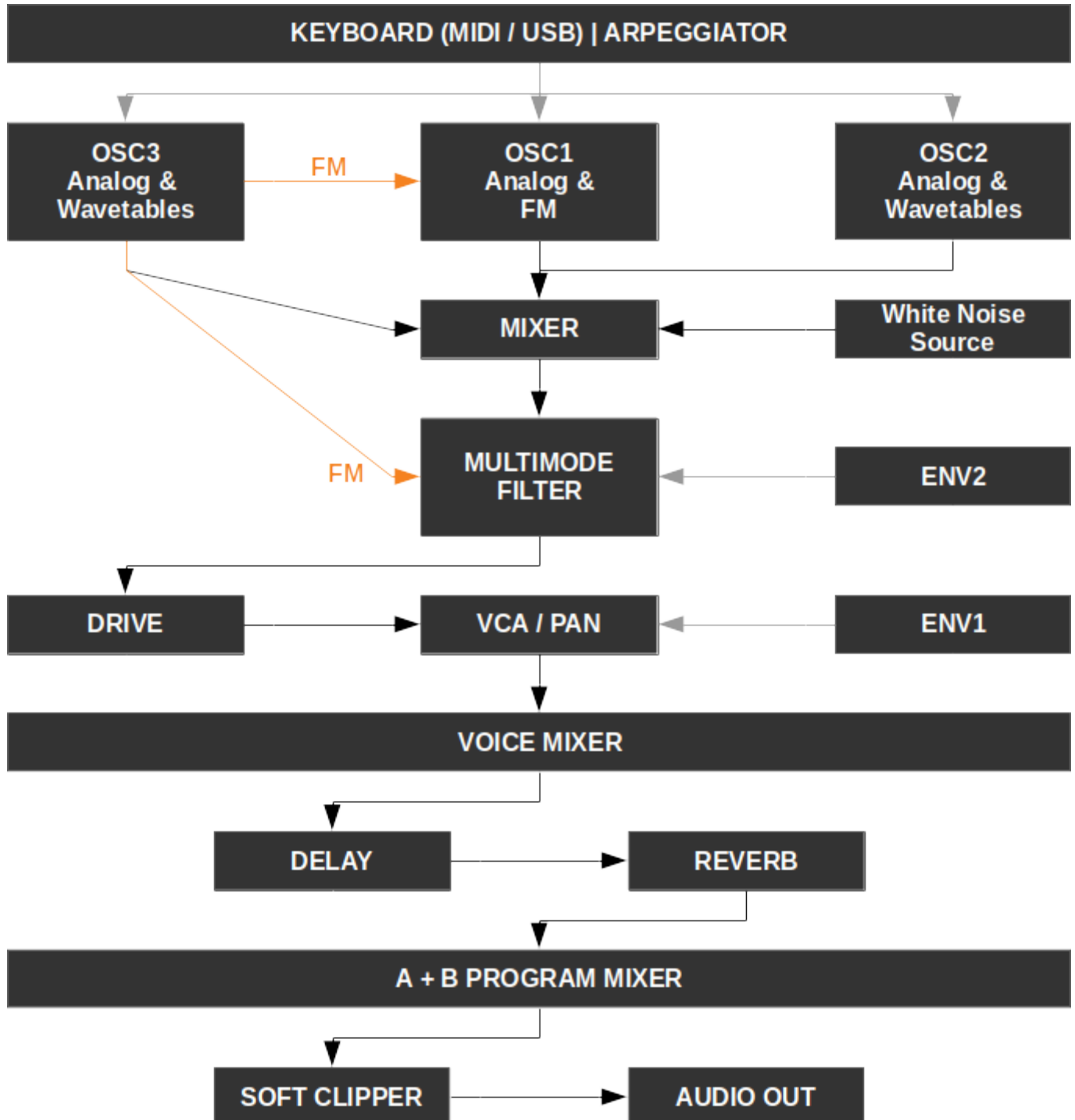
Editing a sound

Quick edit

Quick edit menu is accessed by pressing A or B (if available).
This is the menu you are landing when powering your MicroMonsta 2.

```
P101 INIT
  a1  r1 dly rev
```

Here you see the program name and number, and you have direct access to 4 shortcuts to 4 different synthesis parameters.

By default, these are set to ENV attack time, ENV1 release time, delay level and reverb level.
These assignments can be changed either at program level (see PROGRAM parameters section) or globally in SYSTEM menu (see SYSTEM parameters section).

OSC | Oscillators

MicroMonsta 2 features 3 independant oscillators per voice, they all have the same parameter set, but they cannot access the same algorithms :

```
OSC1 shp coa fin
Saw   52  +0  -5
```

1. Oscillator algorithm

2. shp : oscillator shape

3. coa : coarse tuning

4. fin : fine tuning

Available oscillators algorithms

- Sine : clean sine waveform (no shape parameter)
- SinF : fully rectified sine waveform (no shape parameter)
- SinH : half rectified sine waveform (no shape parameter)
- TrPs : Triangle to Pulse waveform
- TrSw : Triangle to Saw waveform
- TrSq : Triangle to Square waveform
- Saw : Sawtooth waveform
- Sup1 : Supersaw 1 (3 x sawtooths)
- Sup2 : Supersaw 2 – alternate version
- SwHs : Hardsync'd sawtooth
- Squr : Square to Pulse waveform
- SqHs : Hardsync'd square

FM-able algorithms (exclusive to OSC 1)

- FmSi : Sine waveform
- FmTr : Triangle waveform
- FmSw : Sawtooth waveform
- FmSq : Square waveform

For all these waveforms, the shape (shp) parameter controls the amount of FM from OSC3.

Wavetables (exclusive to OSC2 and OSC3)

8 wavetables, each containing 64 slices, are available to OSC2 and OSC3, they are labelled Wt01 to Wt08.

For all these wavetables, the shape (shp) parameter controls the position of the virtual scanning head within the wavetable (in other words, it controls the slice playing).

MIXER

The traditional source mixer menu, allowing to balance each oscillator and the white noise source level. The output of the mixer is sent to the filter.

```
MIX1 mx2 mx3 nze
 84  65   0  25
```

1. Oscillator 1 volume

2. Oscillator 2 volume

3. Oscillator 3 volume

4. White noise volume

FILTER

MicroMonsta 2 has 1 multimode filter per voice, its parameters are spread on 2 different pages :

```
FLTR cut res env
 LP2 100  32 +12
```

1. Filter type

2. Filter cutoff frequency

3. Filter resonance

4. Filter enveloppe 2 amount

```
FLTR      kbd fm3
           34  15
```

1. N/A

2. N/A

3. Keyboard tracking (0 - 100)

4. Filter FM amount (from OSC3)

Filter types

8 filter types are available :

- LP1, LP2, LP3, LP4 : 1, 2, 3, 4-pole lowpass filter

- HP2 : 2-pole hipass filter

- BP2 : 2-pole bandpass filter

- Not : Notch filter

- Pha : Phaser filter

Note : The lowpass filters do not lose bass frequencies when the resonance is increased (full resonance compensation).

DRIVE

The drive parameter is applied at the voice level, and is very useful to add dirt to the sound.

The mix parameter is applied post-fx (think of it as a master volume for the selected program). It is particularily useful to balance the output level of the program. Be carefull as setting it too high can produce unwanted distortion on the output.

```
DRV      drv mix
          32  +3
```

1. N/A

2. N/A

3. drv : Drive level

4. mix : Program output level

ENV | Envelope

3 envelopes are available per voice, ENV1 directly controls the VCA, ENV2 controls the filter frequency and ENV3 is free.

All 3 envelopes are assignabled in the modulation matrix.

```
ADSR3 ENV3
  42  64  32  32
```

They all have the same parameters :

1. Envelope attack time (1ms – 30s)

2. Envelope decay time (1ms – 30s)

3. Envelope sustain level

4. Envelope release time (1ms – 30s)

LFO | Low frequency oscillator

3 LFOs are available per voice.
They can be assigned in the modulation matrix.

```
LFO1 wav spd mod
     sin  48 vce
```

They all have the same parameter set :

1. N/A

2. wav : LFO waveform

3. spd : LFO speed

4. mod : LFO mode (see below)

LFO waveforms

Bipolar waveforms

- sin : sine waveform

- tri : triangle waveform

- saw : sawtooth waveform

- squ : square waveform

- s&h : sample & hold

- rnd : continuously random waveform

Unipolar waveforms

- rise : ascending sawtooth

- fall : descending sawtooth

- sqr_ : descending square

- _sqr : ascending square

LFO modes

- vce : per voice mode, the LFO is restarted at each key press

- one : same as vce, but the LFO stops after one cycle

- key : global mode (1 LFO for all voices within the program), the LFO is restarted at each key press

- fre : same as key, but free-running

MATRIX | Modulation matrix + Operators (lag + mult)

Pressing the MATRIX button will alternate between the Mod matrix and the Lag operator view

Modulation matrix

The modulation matrix allows you to apply a modulation source (an enveloppe or a LFO for example) to a selection of synthesis parameters.
There are 10 modulation matrix slots per program.

```
M01 Src:lfo1*whl
Dst:ptch Amt: +8
```

In mod matrix view, the encoders control the following parameters :

1. Mod matrix slot selection (1 to 10)

2. Mod matrix destination

3. Mod matrix source

4. Mod matrix amount

NOTE : Mod matrix amount is a bipolar value (-99 to +99) and its behavior in not linear (by design).
It allows subtle modulations in lower values, so if you want a drastic change, do not be afraid to push the value:)

Lag operator

Lag operator allow you to « slow » a modulation source, and use the result as a modulation source in the modulation matrix.
For example, « Lagging » a square LFO will round its edges for a less abrupt changes between states.

```
OPS Src:lfo1*vel
Lag       Amt: 25
```

In Lag operator view, you control :

1. OP selector

2. N/A

3. Lag source

4. Lag level

Mult operator

Mult operator multiplies 2 modulation sources and allows you to use the result as a modulation source in the matrix.

```
OPS    A:lfo1*aft
Mult   B:mod knob
```

Controls are :

1. OP selector
2. N/A
3. A mod source
4. B mod source

Modulation sources

Off	No source selected	env1*vel	Env1 * velocity	lfo2*aft	LFO2 * aftertouch
Note	Note number	env2	Envelope 2	lfo2*whl	LFO2 * mod wheel
note+bnd	Note + pitch bend	env2*vel	Env2 * velocity	lfo2*knb	LFO2 * mod knob
velocity	Note velocity	env3	Envelope 3	lfo2*en2	LFO2 * Envelope 2
Aftertch	Aftertouch	env3*vel	Env3 * velocity	lfo3	LFO3
modwheel	Modulation wheel	lfo1	LFO1	lfo3*vel	LFO3 * velocity
mod knob	Mod knob	lfo1*vel	LFO1 * velocity	lfo3*aft	LFO3 * aftertouch
pitchbnd	Pitch bend lever	lfo1*aft	LFO1 * aftertouch	lfo3*whl	LFO3 * mod wheel
random1	Random number	lfo1*whl	LFO1 * mod. Wheel	lfo3*knb	LFO3 * mod knob
rnd1*mod	Rnd number * mod wheel	lfo1*knb	LFO1 * mod. Knob	lfo3*env3	LFO3 * Envelope 3
random2	Random number	lfo1*en1	LFO1 * Envelope 1	lag out	Lag OP output
rnd2*knb	Rnd number * mod knob	lfo2	LFO2	mult out	Mult OP output
env1	Envelope 1	lfo2*vel	LFO2 * velocity	offset	Offset

Modulation destinations

Off	No destination selected	Cuto	Filter frequency	Dcy3	ENV3 Decay time
Ptch	All OSCS pitch	Reso	Filter resonance	Dcys	All ENV Decay time
Tun1	OSC1 pitch	f.fm	Filter FM level	Rel1	ENV1 Release time
Tun2	OSC2 pitch	Driv	Voice Drive	Rel2	ENV2 Release time
Tun3	OSC3 pitch	Glid	Glide rate	Rel3	ENV3 Release time
Shp1	OSC1 shape	Pano	Voice pan level	Rels	All ENV Release time
Shp2	OSC2 shape	Atk1	ENV1 Attack time	Lfo1	LFO1 speed
Shp3	OSC3 shape	Atk2	ENV2 Attack time	Lfo2	LFO2 speed
Mix1	OSC1 level	Atk3	ENV3 Attack time	Lfo3	LFO3 speed
Mix2	OSC2 level	Atks	All ENV Attack time	Lfos	ALL LFO speeds
Mix3	OSC3 level	Dcy1	ENV1 Decay time		
Xnze	White noise level	Dcy2	ENV2 Decay time		

ARP | Arpeggiator

The arpeggiator will turn any chord you play into a repetitive sequence of notes.

Its parameters are spread in 2 pages :

```
ARPG gte oct spd
  up  88   1 /16
```

1. Arpeggator style (up, triplet up, down, triplet down, up & down, random, as played)

2. Gate length

3. Octave spread

4. Speed (clock sync)

```
ARPG       latch
 off         off
```

1. Arp on/off

2. N/A

3. N/A

4. Latch on/off

FX | Effects

MicroMonsta 2 has delay + reverb available – **per program A and B**.

Delay parameters

```
DLAY tim fbk lvl
mod2  49  52  98
```

1. Delay mode (clean, lpf, mod1, mod2)
2. Delay time
3. Delay feedback
4. Delay send level

Hint : The delay effect can be used as a stereo chorus by setting time and feedback to 0.

Reverb parameters

```
REVB dcy mod lvl
      78  42  86
```

1. N/A
2. Reverb decay time
3. Reverb modulation amount
4. Reverb send level

VOICE | Voice parameters

MicroMonsta 2 features an extenive list of parameters affectig the voice behavior of each program. They are spread into 5 pages, in this mode, you select the active page with Encoder 1.

```
1/5      mode uni
VOIC  Poly 1   1
```

1. Voice page selector
2. N/A
3. Voice mode (Poly 1, Poly 2, Mono, Legato)
4. Voice unison count (1, 2, 3, 6)

```
2/5  pansprd gld
VOIC       24   0
```

1. Voice page selector
2. N/A
3. Pan spread
4. Glide (portamento) level

```
3/5       vce osc
DETUNING  24  24
```

1. Voice page selector
2. N/A
3. Voice detune value (all voices detuned differently)
4. Oscillator detune value (randomly generated for each oscillator at each keypress)

```
4/5       dwn  up
PTCHBEND -12   2
```

1. Voice page selector
2. N/A
3. Pitch bend value for negative pitch bend amount
4. Pitch bend value for positive pitch bend amount

```
5/5        vca flt
VEL SENS   24    0
```

1. Voice page selector

2. N/A

3. Velocity sensivity of VCA (scales ENV1)

4. Velocity sensivity of Filter cutoff envelope amount

PROGRAM | Program parameters

Here you will find Program related parameters spread onto several pages :

```
1/4  cat mix bpm
     strg  +3 123
```

1. Program page selector

2. Program category (bass, lead, pad, key, orgn, strg, brss, perc, dron, noiz, sfx, arp, misc, usr1, usr2, usr3)

3. Program volume (you can find a shortcut of this parameter in DRIVE menu too)

4. Program tempo

```
2/4    F    Q    M
Pots SYS SYS SYS
```

1. Program page selector

2. F knob assignment

3. Q knob assignment

4. M knob assignment

```
3/4 Encoder1    2
ENCS        SYS SYS
```

1. Program page selector

2. N/A

3. Encoder 1 assignment

4. Encoder 2 assignment

```
4/4 Encoder3    4
ENCS      SYS SYS
```

1. Program page selector

2. N/A

3. Encoder 3 assignment

4. Encoder 4 assignment

NB : in both pots and encoders assignments screens, SYS means that the pot/encoder is assigned to the parameter set globally in system menu.

This allows some programs to have a custom set of assignments while the others share the global settings.

COMBI | Combi parameters

This menu is available only if Combi mode is activated in SYSTEM menu

```
          mode spl
CMBI splt AB   60
```

1. N/A

2. N/A

3. Combi mode (only A, stack AB, split AB, mult AB)

4. Split point (split AB mode only)

SYSTEM | System parameters

System menu is spread across several pages selected by encoder 1.

Configuration pages

```
1/6          mode
CONF        combi
```

1. System page selector
2. N/A
3. N/A
4. Mode (monotimbral, bitimbral, combi)

```
2/6  lcd tun out
CONF  20 440  st
```

1. System page selector
2. LCD contrast
3. Master tune frequency (432 to 445 Hz)
4. Audio output mode (stereo, dual mono)

MIDI settings

```
3/6  chn clk
MIDI   1 int
```

1. System page selector
2. MIDI channel (1 to 15)
3. Clock source (internal, MIDI, USB)
4. N/A

FQM pots global assignments

```
4/6   F   Q   M
POTS cut res mod
```

1. System page selector

2. F knob global assignment

3. Q knob global assignment

4. M knob global assignment

Quick edit menu encoder assignments

```
5/6 Encoder1   2
ENCS        a1  r1
```

1. System page selector

2. N/A

3. Encoder 1 quick edit menu global assignment

4. Encoder 2 quick edit menu global assignment

```
6/6 Encoder3   4
ENCS      dly rev
```

1. System page selector

2. N/A

3. Encoder 3 quick edit menu global assignment

4. Encoder 4 quick edit menu global assignment

UTILITY

A word about utilities : do not perform these actions in a live set, as some of them will cut the audio while performing the task.

For tasks involving SYSEX files, use a SYSEX manager software to store / send the files to / from your computer - we recommend SYSEX Manager on Mac OS and Bome Send SX on PC.

Dump currently edited program

```
1/3 Dump current
UTIL        Pgm?
```

Hold Yes to send the active program to the USB port as SYSEX.

Dump several programs

```
2/3     Dump P010
UTIL      To P025
```

Use encoder 3 and 4 to select the programs you want to dump.
Hold Yes to confirm and send the SYSEX files to your computer.

Receive several programs

```
3/3    Store Pgms
UTIL      To P010
```

Use encoder 4 to select the program where you want to store your programs. This will be auto-incremented if you send more than one program.
Hold Yes to confirm, then send the SYSEX files from your computer to MicroMonsta 2.

MIDI

Control Change support

CC	TARGET	CC	TARGET	CC	TARGET	CC	TARGET
0	BANK SELECT MSB	32	BANK SELECT LSB	64	SUSTAIN PEDAL	96	
1	MODULATION WHEEL	33	VOICE DETUNE	65		97	
2		34	OSC DETUNE	66		98	
3		35	PAN SPREAD	67		99	
4		36	VCA ENV VELO SENS	68		100	
5	VOICE GLIDE	37	FLT ENV VELO SENS	69		101	
6		38		70	MOD KNOB	102	
7		39	OSC1 SHAPE	71	FILTER RESONANCE	103	
8		40	OSC1 TUNE	72	ENV1 RELEASE	104	
9		41	OSC1 FINE TUNE	73	ENV1 ATTACK	105	
10		42	OSC2 SHAPE	74	FILTER CUTOFF	106	
11		43	OSC2 TUNE	75	ENV1 DECAY	107	
12		44	OSC2 FINE TUNE	76	LFO1 SPEED	108	
13		45	OSC3 SHAPE	77	LFO2 SPEED	109	
14		46	OSC3 TUNE	78	LFO3 SPEED	110	
15		47	OSC3 FINE TUNE	79	ENV1 SUSTAIN	111	
16		48	OSC1 LEVEL	80	ENV2 ATTACK	112	
17		49	OSC2 LEVEL	81	ENV2 DECAY	113	
18		50	OSC3 LEVEL	82	ENV2 SUSTAIN	114	
19		51	NOISE LEVEL	83	ENV2 RELEASE	115	
20		52	MOD MTX LEVEL 1	84	ENV3 ATTACK	116	
21		53	MOD MTX LEVEL 2	85	ENV3 DECAY	117	
22		54	MOD MTX LEVEL 3	86	ENV3 SUSTAIN	118	
23		55	MOD MTX LEVEL 4	87	ENV3 RELEASE	119	
24		56	MOD MTX LEVEL 5	88	FILTER ENVELOPE	120	ALL SOUND OFF
25		57	MOD MTX LEVEL 6	89	FILTER TRACKING	121	
26	DELAY TIME	58	MOD MTX LEVEL 7	90	FILTER FM	122	
27	DELAY FEEDBACK	59	MOD MTX LEVEL 8	91	VOICE DRIVE	123	ALL NOTES OFF
28	DELAY LEVEL	60	MOD MTX LEVEL 9	92		124	
29	REVERB DECAY	61	MOD MTX LEVEL 10	93		125	
30	REVERB MOD	62	LAG LEVEL 1	94		126	
31	REVERB LEVEL	63		95		127	

NRPN support

Not disclosed yet (may be altered in some very future update)

Microtuning

Micromonsta 2 can be retuned globally by sending a Bulk Tuning Dump via MIDI.

Bulk Tuning Dump format

A bulk tuning dump has the following format:
F0 7E <device ID> 08 01 tt <tuning name> [xx yy zz] ... chksum F7, where:

- <device ID> is 0x00 or 0x7F (all devices)

- tt is tuning program number (not used, set to 0x00)

- <tuning name> is 16 ASCII characters (not used, set it to "NotUsedButNeeded" for example)

- [xx yy zz] is the frequency data for one note (repeated 128 times)

- chksum is the calculated checksum (not used)

Limitations

Bulk Tuning Dumps are global, all the patches will be affected.

They are not stored in Micromonsta 2 memory, this means that each time you power it off, it will lose your custom tuning, and you will need to send it again for the working session.

Factory reset

To Factory reset your MicroMonsta 2, hold A + B + Yes at startup.

Specifications

Audio

Audio output : 3.5mm stereo jack, line and headphone compatible

Max output level : 8dBu

Dynamic range : 100dB

MIDI

MIDI input : 3.5mm stereo jack connector, MIDI standard A

Power

USB B connector

Current consumption : 250mA (max)

General

Dimensions : 158mm x 108mm x 40mm