



# AWP SYNTHESIZERS

## Monophonic Bass Synthesizer MBS-100

### User Manual



**MBS-100** - is a monophonic bass synthesizer inspired by synthesizers produced in the soviet era times while having the flexibility, MIDI control and compact package of the 21<sup>st</sup> century. It has 19 knobs, 3 switches and 4 buttons with which you can control the parameters of the sound and MIDI.

### **Specification**

- *Method of synthesis* – hybrid analog-digital synthesis;
- *Voltage-controlled digital oscillators (VCDO)* - two, each with four waveforms: saw, square, pulse 1 (25% rate), pulse 2 (10% rate).  
**Note:** Pulse 1 and 2 are similar to PWM but are fixed similar to «Aelita», «Polivoks» synthesizers for e.g.  
Octave ranges - 3 octaves for OSC1 and 5 octaves for OSC2.
- *Voltage Controlled Filter (VCF)* - one fully analog 12 db/oct low pass filter with cutoff and resonance parameters;
- *Envelope Generators (ADSR)* – two;
- *Voltage Controlled Amplifier (VCA)* – one, fully analog distortion effect selection switch;
- *Low frequency oscillator (LFO)* - one with two waveform options (square and triangle) to control the VCF.
- *MIDI interface* - MIDI In, MIDI Thru (16 channels + Omni);
- *Audio output* - one mix output (mono 6.3 mm jack);
- *Controls* - 19 knobs, 3 switches, 4 buttons and 11 LED indicators;
- *Case:* durable steel case with wooden cheeks;
- *Weight:* 1 kg;
- *Dimensions:* L30 x W16 x H8 (cm);
- *External power supply* – 220v adapter 9 VAC (included).

## Controls

### Front panel



### Rear panel



- ① **OSC** Oscillator control section.  
OSC1 LEVEL, OSC2 LEVEL - volume parameter control of each oscillator;  
OSC1 TUNE, OSC2 TUNE - pitch tuning of each oscillator control;  
SYNC button - synchronization on/off between oscillators;  
OSC1, OSC2 button - waveform selection for each oscillator - saw, square, pulse 1 and pulse 2;  
OCT button - octave selection for OSC2;  
MIDI button - channel selection (16ch and OMNI);  
VELO button - velocity for VCF on/off;  
ENTER button – apply changes to selected parameters;  
LED indicators: display the modes which are selected by the x4 buttons;
- ② **VCF** Voltage-Controlled Filter section (reacts to MIDI too).  
CUTOFF - cutoff parameter control;

RESO - resonance parameter control;  
ADSR LEVEL - VCF envelope level control;  
LFO LEVEL - modulation level control of low frequency oscillator;  
ATTACK - envelope level control, DECAY - envelope level control, SUSTAIN - envelope level control, RELEASE - envelope level control;

③ **LFO** Low-Frequency Oscillator section.

RATE - frequency rate control;

WAVE - waveform selection switch (triangle and square);

④ **VCA** Voltage Controlled Amplifier.

Envelope level controls for ATTACK, DECAY, SUSTAIN and RELEASE;

DISTORTION - level control for the distortion effect;

On/Off switch for the distortion effect;

⑤ **VOLUME** - volume control level;

⑥ **POWER** – On/Off switch;

⑦ **9 VAC** – 220v power adapter jack \*;

⑧ **OUTPUT** - audio output jack;

⑨ **MIDI** – MIDI INPUT and MIDI THRU connection ports.

*\* **MBS-100** adapter operates on 220v, if used on 110v - a power converter from 220v to 110v is required. If you are using it in 110v area, only use the unit with a 220-110v power converter. Without it, the unit will be damaged and will stop functioning.*

### **Connecting MBS-100**

**Power (9V adapter):** Connect the included power adapter to the **POWER** jack of MBS-100.

**Audio output (6.3mm jack):** In order to connect to a mixer or other audio Interface/equipment, please insert a mono jack 6.3 mm in the **OUTPUT** of MBS-100.

**MIDI Input:** Connect the MIDI OUT port of the sequencer or MIDI keyboard (or other MIDI transmitting device) to the MBS-100 **MIDI IN** port.

**MIDI THRU:** this port is used in order to sequence other units along with MBS-100.

### Overview of controls

**MBS-100** structure consists of classical analog subtractive synthesizer module sections: **OSC**, **VCF**, **VCA**, **LFO** and **ADSR**.

### OSC Section

The **TUNE** controls allow you to adjust the pitch of MBS-100 to other instruments, as well as for the classical detuning of the oscillators. Adjustment can be made in the range of  $\pm 2$  semitones.

You can adjust the volume levels of the oscillators with the **LEVEL** controls.

The **SYNC** button enables the synchronization of the two oscillators, wherein the **TUNE** knobs will be turned off and the synth will automatically adjust by the tempered scale.

Buttons **OSC1** and **OSC2** enable to choose one of the four waveforms: saw, square, pulse 1 and pulse 2. When the waveforms "saw" or "square" are selected, the LED indicators with the corresponding symbols are lit constantly.

When waveforms "pulse 1" or "pulse 2" are selected, the same LED indicators will be flashing.

**OCT** button selects the octave of the second oscillator. When it is set at «0» - the second oscillator is tuned in unison with the first oscillator, when it is set to «-» there is a shift by an octave down, "+" shift by an octave up.

**MIDI** button selects the channel of the MBS-100 (see below).

**VELO** button enables/disables the Velocity function that controls the filter (CUTOFF) (see below).

**ENTER** button enables MBS-100 to switch to the operating mode from the setup mode.

### VCF Section

**CUTOFF** and **RESO** controls are used to shape the filter frequency and resonance, respectively.

**ATTACK**, **DECAY**, **SUSTAIN** and **RELEASE** controls are used to adjust the filter envelope, **ADSR LEVEL** allows to set the amount of envelope level applied to the filter.

**LFO LEVEL** control allows to set the amount of modulation applied to the filter via the low-frequency oscillator (LFO).

### LFO Section

**RATE** control allows to adjust the frequency of the LFO while the **WAVE** switch - selection of two available waveforms (square or triangle).

### VCA Section

**ATTACK, DECAY, SUSTAIN** and **RELEASE** controls allows to shape the envelope of VCA, while the **DISTORTION** switch and control allows to adjust the depth of the distortion effect.

**VOLUME** control allows to adjust the volume level of MBS-100.

### Powering on MBS-100

In order to start working with MBS-100 the **POWER** switch should be turned to **On** position.

### MIDI channel selection

In order to set one of 16 **MIDI** channels on MBS-100 use the button **MIDI** located in the **OSC** section.

In order to set the channel hold down the **MIDI** button while turning the **POWER** on. Then by pressing on the same MIDI button you can select the needed channel in accordance with the table below. Each subsequent pressing of the MIDI button will turn on a specific combination of LEDs 1, 2, 3, 4 which corresponds to a specific MIDI channel.

MIDI CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	OMNI
LED №	2	3	2,3	1	1,2	1,3	1,2,3	4	2,4	3,4	2,3,4	1,4	1,2,4	1,3,4	1,2,3,4	NO	1,2,3,4

After choosing the required MIDI channel, press **ENTER** button which will save the MIDI setting.

### **Enabling VELOCITY control**

This setting only allows for the cutoff control of MBS-100.

In order to turn on the velocity control, hold down the **VELO** button and turn on the power on the unit. Then, press the same button to set the LED to show "-".

Press the ENTER button, the MBS-100 will now allow for velocity control.

To turn off the velocity control, hold down the **VELO** button and turn on the power. Then press the same button to set the LED to "0". Then press the ENTER button, the MBS-100 will turn off the velocity control.

### **MIDI Implementation**

**MBS-100** reacts to the following MIDI messages:

NOTE on/off from 24 to 60 (3 octaves);

VELOCITY – allows for VCF control;

PITCH BEND ( $\pm 3$  semitones);

MODULATION (CC#1) – allows for VCF control.

### **Warranty**

The standard warranty on MBS-100 synthesizer is for one year from the date of purchase.

1. The warranty does not apply in the following cases:

- Expiration of the guarantee (after one year from the date of purchase); After-guarantee servicing is possible with additional charges;
- There is any mechanical damage to the inside and/or outside of the unit;
- There are signs of opening or self-repair;
- A malfunction caused by self-updating software, or installing additional options/mods;
- A malfunction caused by damage of the product by other objects and liquids, as well as results of fog, rain and snow.

2. The guarantee does not apply to:

- Adapter;
- Controls if their failure was caused by normal wear or contamination during use.

The shipping costs both ways are at the expense of the Buyer.

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