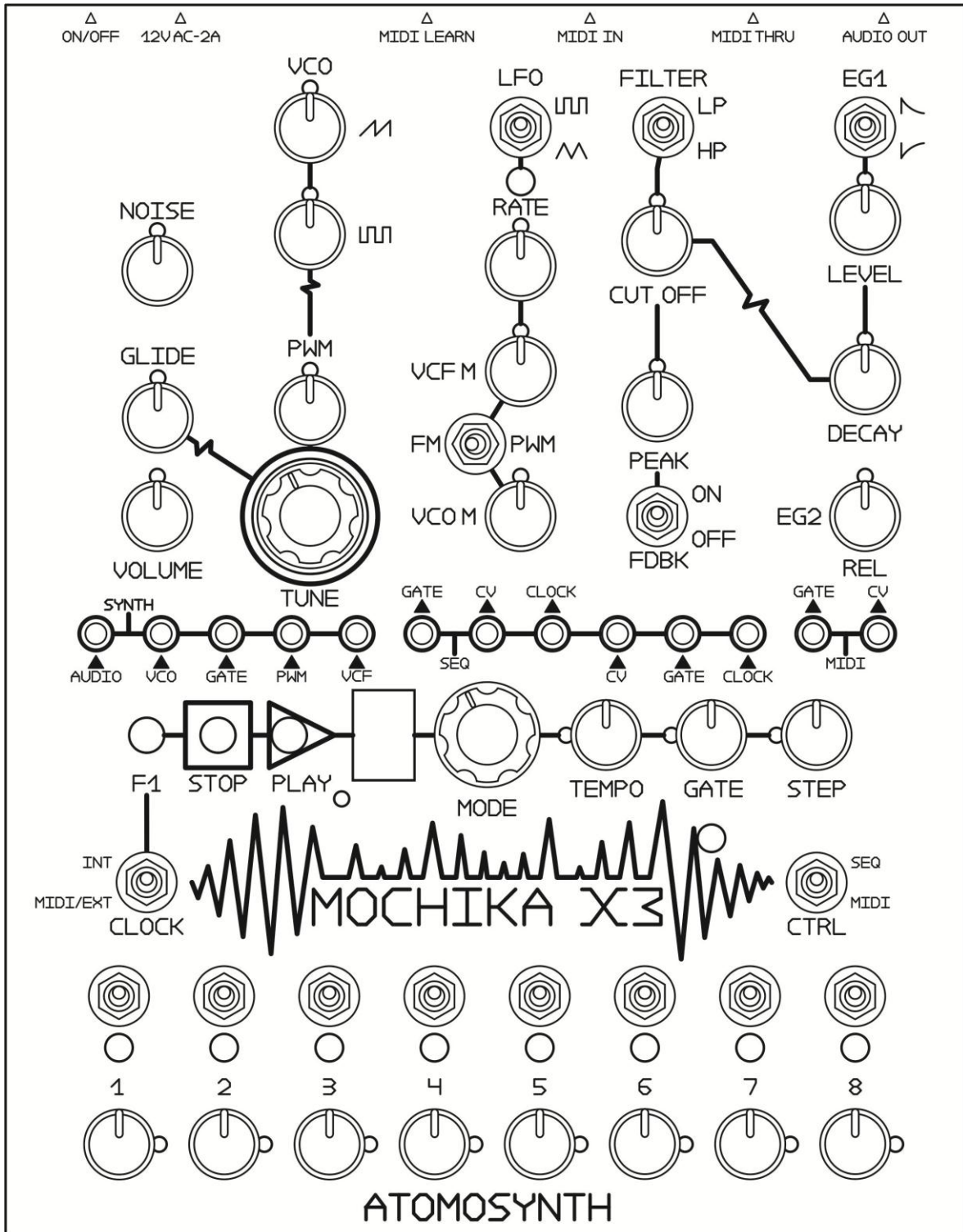


AtomoSynth MochikaX3



Thank you for purchasing the AtomoSynth, Mochika X3 version 1.0.

Analog synthesizer sequencer.

In order to enjoy long and trouble free use, please read this manual carefully and use the instrument correctly. After reading this manual, please keep it for later reference.

Precautions

Location

- Using the unit in the following locations can result in a malfunction.
- In direct sunlight
- Locations of extreme temperature or humidity
- Excessively dusty or dirty locations
- Locations of excessive vibration
- Close to magnetic fields

Power supply

Please connect the unit to the supplied power supply (AC to AC 12V 1000mA). Do not use a DC power supply, the unit will not work or may get damaged.

Interference with other electrical devices

Radios and televisions placed nearby may experience reception interference. Operate this unit at a suitable distance from radios and televisions.

Handling

To avoid breakage, do not apply excessive force to the switches or controls.

Care

If the exterior becomes dirty, wipe it with a clean, dry cloth. Do not use liquid cleaners such as benzene or thinner or cleaning compounds or flammable polishes.

Keeping foreign matter out of your equipment

Never set any container with liquid in it near this equipment. If liquid gets into the equipment, it could cause a breakdown, fire, or electrical shock. Be careful not to let metal objects get into the equipment.

Basic Operation

1. Connect the power supply output to "12V AC" input and connect power supply to mains.
2. Connect the output jack of the unit to an amplifier. Use unbalanced ¼" connector (mono plug). Before doing so, lower the volume of your amp. Note: the output is not designed to be used with headphones, connect it always to an amp.
3. Turn the unit on using the "On/off" switcher in the rear panel.
4. Set the CLOCK switcher to INT position (internal clock)
5. Using the MODE knob select any mode (for example 8)
6. Set the STEP knob all the way left (for the sequence to start in step 1)
7. Set the TEMPO knob to a desired tempo.
8. Set the GATE knob to a low value (about ¼ of the way)
9. Press the PLAY button once to start playing the sequence.
10. Change the pitch of each step using the step knobs
11. Change the sound using the synthesizer section switchers and knobs.
12. To change to another mode while playing, move the MODE knob to select a mode (for example 4.) and then press the PLAY button.
13. To "freeze" the sequence, press and hold the F1 button, and the MochikaX3 will continue playing the same step until the F1 button is released. (it only works in the normal sequence mode and the "Ping-Pong" sequence mode)
14. To select a different start step, slowly move the STEP knob to the right. As it is moved to the right, the sequence will start in step 2, 3...and so on, if the Step knob is set all the way right, the sequence will start in step 8 and all the other steps in the sequence will not sound.
15. Press the STOP button to stop the sequencer.

Midi operation and midi channel setting.

1. Connect midi output of a midi controller device (midi keyboard, midi sequencer, or computer) to the midi input of the MochikaX3 located in the rear panel.
2. Press the MIDI LEARN button once (located in the rear panel), the LED next to it will light up.
3. Send a note-on signal from your midi device (e.g. press a key on your midi keyboard), the LED will go dark and the MochikaX3 will be automatically set to the same midi channel of your midi device, it will be saved in memory even when the unit is turned off.
4. Set the CTRL switcher to the MIDI position (the synthesizer part will be controlled by the internal midi to CV interface and no longer by the sequencer)
5. Start playing from the external midi device.

Midi synchronization.

1. Connect the midi output of a midi clock device to the midi input of the MochikaX3.
2. Set the CLOCK switcher to EXT/MIDI position.
3. Set the CTRL switcher to the SEQ position (the synthesizer part will be controlled by the internal sequencer and no longer by the internal midi to CV interface)
4. Select any mode (except oscillator mode 0) using the MODE knob.
5. Set the TEMPO knob to the mid-way. The MochikaX3 has a clock divider function, please refer to the TEMPO knob section in this manual.
6. Press the PLAY button. The MochikaX3 will start playing the sequence in synchronization with the midi master device.

External clock synchronization.

1. Connect an analog clock signal or pulse (0 to 12V) from an external sequencer or LFO to the CLOCK input of the MochikaX3 located in the patch bay.
2. Set the CLOCK switcher to EXT/MIDI position.
3. Set the CTRL switcher to the SEQ position (the synthesizer part will be controlled by the internal sequencer and no longer by the internal midi to CV interface)
4. Select any mode (except oscillator mode 0) using the MODE knob.
5. Set the TEMPO knob to all the way right. When the TEMPO knob is set to all the way right, the unit will increase one step per clock pulse. You can experiment with other settings of the tempo knob, as you set the TEMPO knob to a lower position, the unit will increase one step each 3, 6, 12 and 24 clock pulses, please refer to the TEMPO knob section in this manual.
6. Press the PLAY button. The MochikaX3 will start playing the sequence in synchronization with the external clock device.

Sequence triggering and transposition by midi

1. Connect the midi output of a midi controller device (e. g. midi keyboard) to the midi input of the MochikaX3 located in the rear pannel.
2. Set the CLOCK switcher to INT position. You can also set it in the EXT/MIDI position, if you want to synchronize by an external clock connect an external clock signal to the CLOCK input located in the patch bay. When you want to synchronize by midi clock, make sure the midi controller device is also sending a midi clock signal.
3. Set the CTRL switcher to the SEQ position.

4. Select any mode (except oscillator mode 0) using the MODE knob, press the PLAY button to confirm the mode selection and then press the STOP button.
5. Set the TEMPO knob to a desired tempo.
6. Using patch cables (3.5mm jack), connect the MIDI CV output to the SEQ CV input and connect the MIDI GATE output to the SEQ GATE input, all located in the patch bay.
7. Start playing from the external midi controller device. When a note is played in the midi controller device, the mochikaX3 will start playing its sequencer and it will be transposed to the note played on the controller.



Sequencer MODES


The MochikaX3 sequencer has many playing modes set the mode by turning the MODE knob, the DISPLAY will show the mode number.


1. Oscillator mode. **0** When set on the oscillator mode press PLAY and it will play just one step, choose the step that you want to be played by turning the STEP knob, set the duration of the played step (gate time) by turning the GATE knob, when you set the Gate knob to the maximum (all the way right) the gate time is set to infinite and it will play continuously until you press the STOP button.



2. Sequence mode, from **2** to **8** It is the normal forward sequence, the numbers are the steps in the sequence. For example to play a 3 step sequence, turn the MODE knob until the Display shows the number 3 and press the PLAY button, to



change to any other mode while playing, just select other mode and press PLAY to apply the change.

3. Ping Pong mode. From  to  (number with dot) it is the forward and backward (ping pong) sequence mode, the numbers are the steps in the sequence. Operation is the same as in the sequence mode.

4. Random mode  the sequencer plays the steps in random order.

5. Random repetition mode  (r with dot) it is a sequence in which each step is repeated a random number of times, the maximum number of repetitions can be set from 2 up to 8 by turning the STEP knob while playing.

6. Repetition mode. From  to  (numbers with blinking dot) it is the Repetition Mode, in which each number indicates the step number, each step can be repeated from 1 to 8 times. Set the number of repetitions by pressing and holding the F1 button and turn the MODE knob. For example to set 5 repetitions to the step number 3, turn the MODE knob until the DISPLAY shows the number 3 with the dot blinking, then press and hold the F1 button, another number will be shown (without the blinking dot) it is the actual number of repetitions, turn the MODE knob until it shows 5 then release the F1 button, it will show the number 3 again (step number), it can be done while the sequencer is playing in normal sequence mode or Ping-Pong mode, or while the sequencer is stopped. To reset the repetitions settings (all steps to 1 repetition) press and hold the F1 button and the press the STOP button once and release the F1 button, it can be done when the sequencer is playing or stopped.

7. Gate type mode. From  to  (blinking numbers) It is the gate type mode, where each number indicates the step number,

each step can be set to **A** (normal gate type) in which the gate time is defined by the GATE knob. And **b** (hold gate type) in which the gate is active all the time the step is played.

To set the gate type turn the MODE knob to the desired step number (blinking number) then press and hold the F1 button, a letter will be shown it is the actual gate type, turn the MODE knob to set the gate type to A or b and release the F1 button, it can be done while the sequencer is playing in normal sequence mode or Ping-Pong mode, or while the sequencer is stopped. To reset the gate type settings (all steps to A type gate) press and hold the F1 button and the press the STOP button once and release the F1 button, it can be done when the sequencer is playing or stopped.

8. Gate Arpeggio modes. From **A** to **J** these are 8 patterns of Gate Arpeggio (A, b, C, D, E, F, H, J) When set on any of the arpeggiator modes press PLAY and it will play just one step in a rhythmical pattern, choose the step that you want to be played by turning the STEP knob, set the duration of the played step (gate time) by turning the GATE knob.

Front panel elements.

SYNTHESIZER SECTION

NOISE knob.

It sets the amount of white noise applied to the mix.

VCO (Voltage Controlled Oscillator)

Saw tooth waveform knob.

It sets the level of the saw tooth waveform of the VCO

Pulse waveform knob.

It sets the level of the pulse waveform of the VCO.

The level of each waveform affects the response of the filter, at low to medium level will produce a warmer sound and with the filter peak at medium to high level, it will produce a great “growl” effect especially with low frequencies.

PWM knob.

It sets the width of the pulse waveform.

TUNE knob.

It sets the overall pitch range of the VCO.

GLIDE knob.

It sets the glide time effect.

VOLUME knob.

It sets the overall output volume of the unit.

LFO (Low Frequency Oscillator)**LFO switcher.**

It sets the waveform of the LFO to square or triangle wave.

Rate knob.

It sets the frequency of the LFO.

VCF M knob.

(Voltage controlled filter modulation) It sets the level of LFO modulation applied to the filter.

FM/PWM switcher.

It sets the LFO to modulate the frequency of the VCO (FM) or to the pulse width of the VCO (PWM).

VCO M Knob.

It sets the level of LFO modulation applied to the VCO.

FILTER (VCF, Voltage Controlled Filter)

LP/HP switcher.

It sets the mode of the filter to Low pass or High pass.

CUT OFF knob.

It sets the cut off frequency of the filter.

PEAK knob.

Is sets the resonance level. At high levels it adds a distortion effect to the sound.

FBDK switcher.

In the ON position it feeds the output audio signal to the audio input, for a subtle boost effect especially noticeable in low frequencies and bass sounds.

EG (envelope generators)

EG1 switcher.

Using this, you can select between a normal envelope curve or an inverted envelope curve to modulate the filter cut off.

LEVEL knob.

It sets the level of the envelope modulation to the filter cut off frequency.

DECAY knob.

It sets the decay time of the envelope modulation to the filter.

EG2 REL Knob.

It sets the release time of the envelope generator 2 which is applied to the output amplifier.

PATCH BAY SECTION.

SYNTH connections.

AUDIO input.

It is used to feed a line level audio signal to be mixed with the oscillator and noise signal and will be affected by the filter and envelope generator.

VCO input.

It is used to feed a control voltage signal (1 volt per octave) for controlling the pitch of the oscillator. When a plug is connected to this input jack, the VCO will get disconnected from the internal sequencer and internal midi interface.

GATE input.

It is used to feed a gate signal (0 to 12 volt) for triggering the envelope generators. When a plug is connected to this input jack, the gate signal from the internal sequencer and internal midi interface will be disconnected.

PWM Input.

It is used to feed a voltage signal (0 to 12 volt) to modulate the width of the pulse waveform. When a plug is connected to this input jack, the LFO modulation applied to the pulse width will be disabled.

VCF Input.

It is used to feed a voltage signal (0 to 12 volt) to control the cut off frequency of the filter. When a plug is connected to this input jack, the control voltage applied will be mixed with the control voltages from the LFO and cut off knob.

SEQ (sequencer) connections.

GATE output.

It outputs the gate signal (0 to 5 volt) from the internal sequencer.

CV output.

It outputs the control voltage signal (0 to 4 volt) from the internal sequencer.

CLOCK output.

It outputs the clock signal (0 to 5 volt) from the internal sequencer, when the unit is synchronized with an external clock, this connector will output the signal from the external clock, when the unit is synchronized by midi, it outputs a signal synchronized to the midi clock input.

CV input.

It is used to feed a control voltage signal from an external sequencer or cv keyboard or from the internal midi to CV, this will be mixed with the control voltage generated by the internal sequencer and will be sent to the internal synth (VCO) and also output to the CV out jack.

GATE input.

It is used to feed a gate signal (0 to 12 volt) from an external sequencer, CV keyboard or from the internal midi to CV interface, this will start the internal sequencer.

CLOCK input.

It is used to feed an external clock signal (0 to 12 volt) from an external sequencer to be synchronized with, The MochikaX3 has a clock divider function it is controlled by turning the TEMPO knob and pressing the PLAY button (please refer to the TEMPO knob section in this manual). When a jack is connected to the CLOCK input, the internal clock signal and the clock signal generated by the internal midi to CV clock interface get disabled.

MIDI connections (internal midi to CV interface).

GATE output.

It outputs the gate signal (0 to 5 volt) from the internal midi to CV interface.

CV output.

It outputs the control voltage signal from the internal midi to CV interface, it has a range of 57 notes.

SEQUENCER SECTION

F1 button.

When a normal sequence mode or “pingpong” sequence mode is playing you can push the F1 button and the sequence will “freeze” and will continue playing the same step till the F1 button is released.

When in repetition mode or gate mode, while pressing the F1 button and turning the MODE knob you can set the number of repetitions of each step in the repetition mode (dot blinking), or set the gate type for each step in the gate mode (number blinking).

STOP button.

It stops the sequence. When in repetition mode or gate mode, while pressing the F1 button and then press the STOP button once, it resets all the repetitions and gate type settings of all steps.

PLAY button.

Press it to start playing the sequence, or to apply any change of mode or clock input. While a sequence is playing and press the PLAY button it resets the sequence to the first step. While a sequence is

playing and you change to any other sequence, oscillator or arpeggio mode, press the PLAY button to apply the changes.

Display.

It shows the mode and steps numbers.

MODE knob.

Use this to set the mode, number of repetitions and gate type.

TEMPO knob.

It sets the tempo when the CLOCK switcher is in INT internal mode.

When the CLOCK switcher is set to the EXT/MIDI position, the TEMPO knob will divide the incoming clock signal:

1. If the TEMPO knob is set to all the way left, the sequencer will increase one step per each 24 incoming clock/midi pulses.
2. If it is set before the mid-way position, the sequencer will increase one step per each 12 incoming clock/midi pulses.
3. If it is set to the mid-way, the sequencer will increase one step per each 6 incoming clock/midi pulses.
4. If it is set after the mid-way, the sequencer will increase one step per each 3 incoming clock/midi pulses.
5. If it is set to all the way right, the sequencer will increase one step per each incoming clock/midi pulses;

To apply the TEMPO knob setting press the PLAY button.

GATE knob.

It sets the gate time of all steps (except when a step is set in b type, hold gate type). When playing a sequence it is recommended to set a GATE time short enough for the gate LED to go dark before each next step starts so the envelope generators get triggered. You can monitor the gate signal with the LED located under the GATE knob.

STEP knob.

When in normal sequence mode or “Ping-Pong” sequence mode the STEP knob is used to set the “initial” step, if the STEP knob is set all the way left, the sequence will start in step 1, as it is turned to the right, the sequence will start in step 2, 3 and so on, if it is set all the way right, the sequence will start in step 8 and all the other steps in the sequencer will not sound.

It is used also to choose one of the 8 steps in the oscillator mode and in the gate arpeggiator modes.

When the sequencer is playing in the random repetition mode, the STEP knob sets the maximum number of repetitions from 2 (all the way left) up to 8 repetitions (all the way right).

CLOCK switcher.

It sets the clock source, it has 2 positions: INT for internal clock and EXT/MIDI for external and midi clock. To apply the change of clock source press the PLAY button.

CTRL switcher (Control switcher).

It sets the control source: In the SEQ position, the internal synthesizer will be controlled by the internal sequencer. In the MIDI position, the internal synthesizer will be controlled by the internal midi to CV interface.

Step Switchers.

Each step switcher turns on and off the gate signal for each step.

Step LEDs.

Each step LED light when each step is active.

Step Knobs.

Each step knob set the pitch or voltage for each step.

Rear panel elements.

On/Off switcher.

Used to turn on and off the unit.

12V AC connector.

Used to connect the included power supply, it forced to replace the power supply, make sure it is a AC to AC (alternate current) 12V of at least 1 Ampere.

Midi Learn button.

Used to define the midi channel, press it once and then send a midi note-on from the connected midi controller device, the unit will be set in the same midi channel as the controller.

Midi signal LED.

It will light up when an incoming midi signal is received.

MIDI IN connector.

Used to connect an external midi controller device or midi master clock device.

MIDI THRU connector.

It outputs the same signal received at the MIDI IN connector, is used to connect other midi devices in chain.

AUDIO OUT connector.

It outputs the audio signal generated by the MochikaX3.