

SX-I effector / synthesizer. (MK3)

USER AND INSTALLATION MANUAL

ver 1.23
(for firmware 1.23 and later)



i-nstruments®

1.0 FRONT PANEL

Tabletop Version



1. **Display OLED.**

2. **Infinite Encoder with pressure switch.** (Principally used to move between menus and for additional functions inside menus).

3. **Infinite Encoder with pressure switch.** (It commands specific functions in relation to the used menu).

4. **Potentiometers (1,2,3,4).** (Potentiometers for editing of the parameters of effects and settings, in relation to the used menu).

5. **Toggle switch.** (It modifies the global selection of the menus, from Synthesizer to Effector and vice versa).

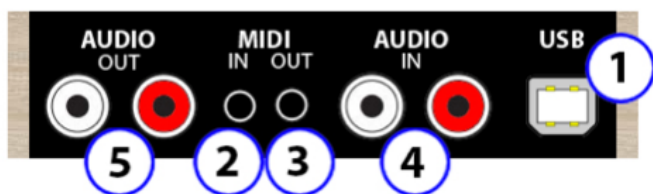
6. **Power Button.** While running, holding the button for 4 seconds turns off the unit. Pressing for 0.5 seconds while power is off turns the unit back on.

1u Rack Module Version



1.1 CONNECTORS PANEL

Tabletop Version

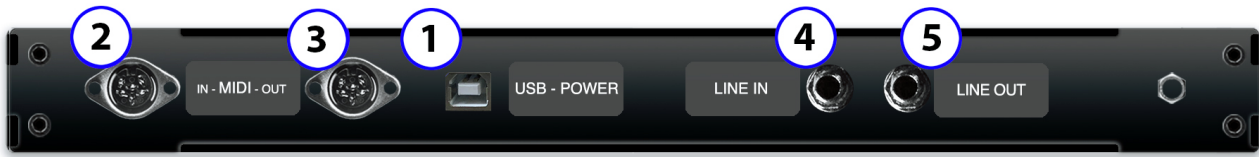


1. **USB connection** (MIDI Class Compliant). The USB connector is also used to recharge.

2. **Jack 3.5mm MIDI IN.** (3 pin) Tabletop / DIN 1u Rack Module Version

3. **Jack 3.5 mm MIDI OUT.** (3 pin) Tabletop / DIN 1u Rack Module Version

1u Rack Module Version



4. **RCA AUDIO LINE IN** (Left - Right) Tabletop / **Jack 6.3 mm STEREO** 1u Rack Module Version
5. **RCA AUDIO OUT** (Left - Right) Tabletop / **Jack 6.3 mm STEREO** 1u Rack Module Version

1.2 SPECIFICATIONS

Effector: 2 x Delay (Tape and Standard), 2 x Revers (Acoustic and Freeverb), Granular, Bitcrusher, LFO, Flanger, Filters (Hi-Low Pass and MOOG Ladder Filter), Compressor, Phaser, Drop special effect.

Synthesizer: White Noise, Pink Noise, Drums, 3 x VCO, FM / AM Modulation, VCF, Envelope.

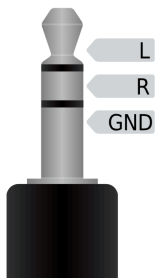
AUDIO

1u Rack Module Version

JACK 6,3 mm stereo.

Tabletop Version

RCA LEFT - RIGHT.



Sensibility **AUDIO LINE LEVEL**: 3.12 Volts p-p (in) 3.16 Volts p-p (out). -10db

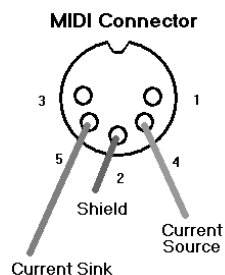
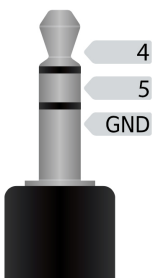
MIDI

1u Rack Module Version

JACK 3,5 mm a 3 pin

Tabletop Version

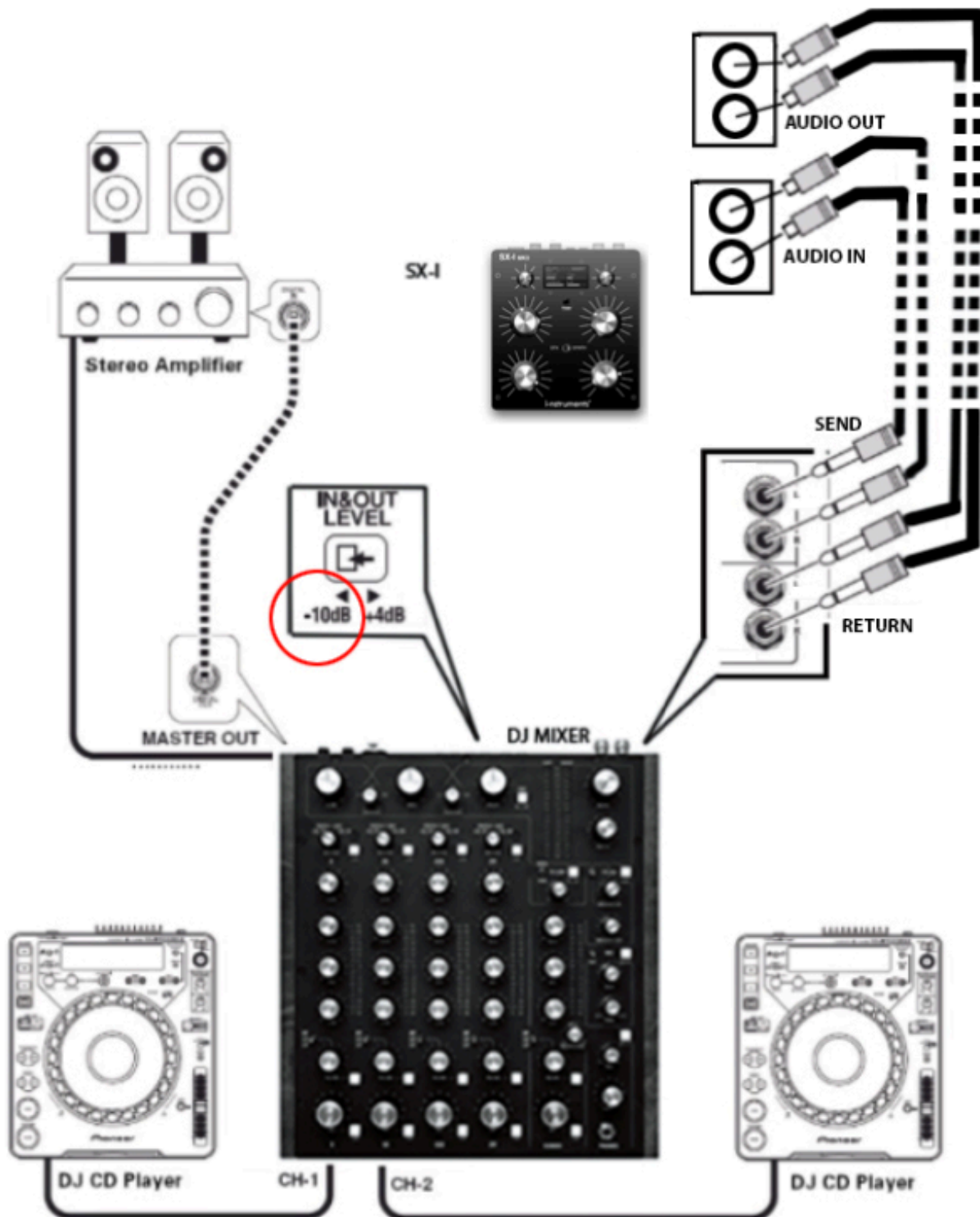
DIN 1u



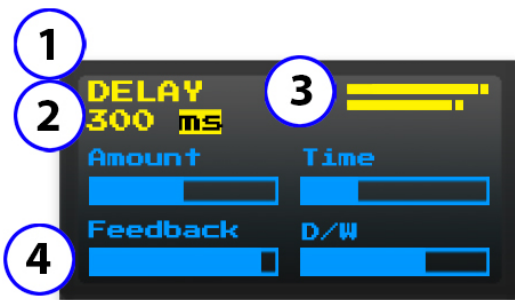
Midi Electrical Specification 1.1 (2014) - 3.3 volt signaling.

2.0 MIXER CONNECTION

SX-I can work with both MONO signals in one channel and STEREO signal in two channels. The attenuation's configuration to use is **-10db**. In the following diagram is shown an example of standard configuration with SEND / RETURN from mixer to SX-I.



3.0 DISPLAY



1. **Menu Name.** It indicates the name of the effect or of the synth on which you're working on, all the effects can work simultaneously regardless the active menu also in addition to synthesized sounds by the SX-I.

2. **Additional Information.** Details related to the menu on which you're working on. The example indicates the specific in ms of delays used (8) on the total of availables (6000).

3. **Peak Level.** The higher slash shows the input audio level, the lower one the output level. If one of the levels is higher

than 0db, the word "clip" will appear. In this case, it will be necessary to edit the input and output volume.

4. **Potentiometer indicator.** When one of the potentiometer get commanded the display indicator specifies the opening of the potentiometer, the values will be calculated based on the relative position. This features controls the behavior of pots when their physical position does not match the associated parameter value, which often happens changing the menus. Turning the knob adjusts the parameter value proportionally, so that there are no sudden jumps in values.

4.0 GLOBAL

To go into the "Global" menu, make sure that the toggle switch is on the left (see 1.0 front panel), so click one time the encoder on the left of the display (the item "menu" will be highlighted) and then turn it until it's arranged in the required menu.

In the Global section, it's possible to change the general D/W values, Reverb and Delay effects, the filter and activate the "OFF" feature, it's also possible to save and recall PRESET.

4.1 Reverb

It allows to set up the Reverb's quantity to add to the source's signal, the command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When the Reverb is zero, the input signal will be the same as the output one, so the Reverb won't be audible. The more you turn up the potentiometer, the more the Reverb will be marked. The Reverb of the GLOBAL menu commands the Reverb's Amount and increases automatically the Time in a logarithmic way until a maximum of 6 seconds when the potentiometer is at maximum. (see 6.0 Reverb).

4.2 Delay

It allows to set up the quantity of delay to add to the source signal. The command can be done rotating the potentiometer nr. 2 (see 1.0 front panel). When the Delay is set on zero, the input signal will be the same as the output one, so the delay won't be audible. The more you turn up the potentiometer, the more the Delay will be marked. The delay of the GLOBAL menu commands the Amount of all the delays (T1, T2, T3) and it increases automatically the feedback until the 50% of the potentiometer's value. It's possible to vary the Time of the delays getting into the "Delay" menu (see 5.0 Delay). Default time is set up on 120 ms and the Delay T1 is the only one activated.

4.3 Filter

It allows to filter in high pass the input signal in the SX-I. The command can be done rotating the potentiometer nr. 3 (see 1.0 front panel). When the Filter is set on zero, the signal won't be filtered. If the potentiometer is at the maximum, the SX-I will process only the frequencies higher than 400hz.

4.4 D/W

It allows to set up the effects' quantity to add to the source signal, the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When the D/W is set on zero, the input signal will be the same as the one in the output, then all effects won't be audible. When the D/W is at maximum, the input signal will totally be over the effects and in the output, there will be only the processed signal.

This D/W general function is available in all the effects menu and in the Noise menu and it's always corresponding at the potentiometer nr. 4.

4.5 Preset

It's possible to memorize and recall up to 4 preset.

The preset memorizes all the setups of all the menus and the parameters of effects and synth.

Preset's memory is permanent and it won't be lost in case of shutdown, battery discharge.

The number of current preset is indicated on the menu's item "Global".

To save or charge a preset it is necessary to be placed on the memory that we want to use, rotate the encoder on the right of the display, when you are on the number of desired preset the character "#" will be highlighted, then press the same encoder once.

It will appear the item "READ / WRITE" (reading). Rotating again the encoder it will appear the item with the opposite selection "READ / WRITE" (writing), press the encoder when you are on the required option.

4.5 Off

It allows to mute the input signal of effects, this feature allows to play the natural sound effects evolution until the end while the original input signal is active.

It's possible to mute the effects pressing the encoder on the right of the display and the item "OFF" is visible on the display. Press the encoder again to reactivate the input signal of the effects.

4.6 Setup page

To access the setup page of the GLOBAL menu you must press and hold for more than 4 seconds the encoder located on the right of the display.

In this page it is possible to set the input filter resonance and change the function of potentiometer nr. 4 (see 1.0 front panel), between D/W and DELAY TIME.

5.0 DELAY

To get into the "Delay" menu, make sure that the toggle switch is placed on the left (see 1.0 front panel), then press once the encoder on the left of the display (the item "menu" will be highlighted) and afterwards turn it until it's arranged on the required menu.

In the Delay section the Delay effect's setup can be managed, in the SX-I there are 3 different delays that can work simultaneously (see 5.4 Max Delay Time) and they have a personal setup menu. The maximum time usable of the 3 delays is 4.000ms (4 seconds).

For each delay, it's possible to edit the "Amount" (quantity of effect to be added to the source), the "Feedback" (quantity of signal processed to be sent back to the input of all the delays), the "Time" (delay's time) and the general "D/W" (quantity of the effect to be added to the source).

5.1 Amount

It allows to set up delay's quantity to add to the source's signal, the command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When the Amount is set on zero, the input signal will be the same as the output one, so the delay won't be audible. If the Amount is at maximum, the input signal will totally be above the effects.

5.2 Feedback

It allows to set up the signal's quantity to send back in the input to the delays. The command can be done

rotating the potentiometer nr. 2 (see 1.0 front panel). When the Feedback is set on zero, the signal won't be sent to the input. If the potentiometer is at the maximum, the signal of the delay will be sent in the input to the same effect.

5.3 Time

To set up the time it's necessary to rotate the potentiometer nr. 3 (see 1.0 front panel). When the potentiometer is at the minimum the time is 0ms (so the delay is null), when the potentiometer is at the maximum the time is "max delay time" already set up (see 5.4 Max Delay Time).

You can set the delay time using TAP-TEMPO, by repeatedly tapping the encoder on the right of the display (see 5.9.4 Tap Tempo). The "Time" set will be the time between each tap, and the position of potentiometer 3 will be ignored.

If TAP-TEMPO is set to "MIDI Clock" and there is an incoming midi clock signal, TAP will not use the time between taps but the midi clock time.

If TAP-TEMPO is set to "BPM DETECT" and an audio signal is input, TAP will not use the time between taps but the beat of the audio track.

Once the delay time is selected, you can divide it into 1/4 or 1/3 or synchronous multiples by turning the encoder to the left of the display.

5.4 Max Delay Time

"Max Delay Time" means the maximum time that can be used by the Delay that you are using. This information is shown under the item of the "Delay" menu.

For example, if we have a value that indicates "400/4000ms" it means that the Max Delay Time is 4000ms and that you have a Delay's Time set up in 400ms.

The maximum value usable in total by the SX-I is 4000ms.

It's possible to use more than one delay simultaneously by activating the "Multi Stage" function (see 5.9.5 Multi Stage) and it is necessary to decrease the Max Delay Time of the first delay in order to free usable time for the next one, it's the same for the third usable delay menu.

If there isn't "Max Delay Time" available for the next delay menu, delay 2 and 3 will not be displayed.

To change the value of "Max Delay Time" you must turn the encoder to the right of the display.

5.5 D/W

It allows to set up the effects' quantity to add to the source signal, the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When the D/W is set on zero, the input signal will be the same as the one in the output, then all effects won't be audible. When the D/W is at maximum, the input signal will totally be over the effects and in the output, there will be only the processed signal.

This D/W general function is available in all the effects menu and in the Noise menu and it's always corresponding at the potentiometer nr. 4.

5.6 Tape Delay

It's a type of delay that uses analog recording tape to achieve the effect. Back in the "old days", producers and engineers created delay effects using tape machines that makes the pitch of the sounds when the time is changed. To activate the DELAY mode named TAPE you have to change the corresponding setting in the setup page (see 5.9 Setup Page).

5.7 HR

This parameter is available when the Delay type is setting up to TAPE (see 5.9 Setup page).

HR is how long it takes for the "read head" to get to the desired delay time. 0 is as quickly as possible, 10 is a standard tape delay sound and 20 is getting a little slow and crazy.

To vary the "HR" value it's necessary to rotate the encoder on the right of the display.

5.8 Off

It allows to mute the input signal of effects, this feature allows to play the natural sound effects evolution until the end while the original input signal is active.

It's possible to mute the effects pressing the encoder on the right of the display and the item "OFF" is visible on the display. Press the encoder again to reactivate the input signal of the effects.

5.9 Setup page

To access the setup page of the DELAY menu, press and hold the encoder on the right side of the display for more than 4 seconds.

On this page you can edit the following parameters:

5.9.1 Dry/Wet

You can change the total amount of the Delay effect by turning and then pressing the encoder to the right of the display. The "100% MAX" setting is best suited for send/return connections or for adding a pre-delay time to the unit's entire effects chain.

5.9.2 Mode

You can change the type of Delay used from "Standard" to "Tape".

When the "Mode:" setting is set to "Standard" the delay effect will not play any pitch of the sound when the "Time" setting is changed, but when the setting is set to "Tape" when the "Time" is changed it will play pitch effects of the sound typical of tape media.

5.9.3 Ping-Pong

It generates a "bounce" effect between the left and right channels of the signal output from the effect.

5.9.4 TAP TEMPO

You can change the automatic delay time detection between 3 different modes: Manual, BPM detect , MIDI Clock.

To change this setting you must turn the right encoder and position yourself on the corresponding item, then press the right encoder and turn it to activate the chosen mode.

5.9.5 Multis Stage

Two additional delay stages can be activated, splitting the maximum available time over 3 independent delays.

6.0 REVERB

To get into the "Reverb" menu, make sure that the toggle switch is placed on the left (see 1.0 front panel), then press once the encoder on the left of the display (the item "menu" will be highlighted) and afterwards rotate it until it's placed in the required menu.

In the Reverb section the setup of the same effect can be managed. In the SX-I all the effects can work simultaneously. It's possible to edit the "Amount" (the effect's quantity to add to the source), the "Size" (time of reverb), the "Diffusion" (attenuation factor) and it's possible to change the general D/W values.

6.1 Amount

It allows to set up the quantity of Reverb that can be added to the source signal. The command can be done rotating the potentiometer nr.1 (see 1.0 front panel). When the Amount is set on zero, the input signal will be the same as the one in the output, when the reverb won't be audible, the more you turn up the potentiometer the more the reverb will be marked.

6.2 Size

To set up the reverb's Size it's necessary to rotate the potentiometer nr. 2 (see 1.0 front panel). When the potentiometer is at the minimum, the time is 0ms (so the reverb will be very short). When the potentiometer is at the maximum (so the reverb will be very long).

6.3 Diffusion

To set up the reverb's Diffusion it's necessary to rotate the potentiometer nr. 3 (see 1.0 front panel). More damping causes higher frequency echo to decay, creating a softer sound, similar to a large room filled with people or materials which absorb some sound as it travels between reflecting surfaces. Lower diffusion simulates a harsher reverberant field.

6.4 D/W

It allows to set up the effects' quantity to add to the source signal, the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When the D/W is set on zero, the input signal will be the same as the one in the output, then all effects won't be audible. When the D/W is at maximum, the input signal will totally be over the effects and in the output, there will be only the processed signal. This D/W general function is available in all the effects menu and in the Noise menu and it's always corresponding at the potentiometer nr. 4.

6.5 Off

It allows to mute the input signal of effects, this feature allows to play the natural sound effects evolution until the end while the original input signal is active.

It's possible to mute the effects pressing the encoder on the right of the display and the item "OFF" is visible on the display. Press the encoder again to reactivate the input signal of the effects.

6.6 Setup Page

To access the setup page of the REVERB menu, hold down the encoder located on the right of the display for more than 4 seconds.

In this page you can set the type of reverb to use, selecting between "FREEVERB" and "ACOUSTIC".

When the reverb is set to "ACOUSTIC" the "Lowpass", "HiDamp", "LowDamp" and Dry/Wet parameters can be changed.

6.7 Lowpass

It's possible to enable a low pass filter on the reverb input.

The values vary from 0 to 10, where 10 is the lowest cutoff frequency.

6.8 HiDamp

It's possible to set a damping value only on the highest frequencies at the reverb input.

The values vary from 0 to 10, a high value of the dump on the high frequencies produces a darker sound.

6.9 LowDamp

It's possible to set a damping value only on the low frequencies at the reverb input.

The values vary from 0 to 10, a high value cuts more bass in the reverb tail to make the sound brighter.

6.10 Dry/Wet

You can change the total amount of the Acoustic Reverb effect by turning and then pressing the encoder to the right of the display. The "100% MAX" setting is best suited for send/return connections.

7.0 GRANULAR

To get into the “Granular” menu, make sure that the toggle switch is placed on the left (see 1.0 front panel), then press once the encoder on the left of the display (the item “menu” will be highlighted) and afterwards rotate it until it's placed on the required menu.

In the Granular section the setup of the same effect can be managed. In the SX-I all the effects can work simultaneously. It's possible to edit the “Amount” (the effect's quantity to add to the source), the type of the granular sample (Pitch Shift or Freeze), the sample “Speed”, the sample “Length” and the general “D/W” (quantity of the effect to be added to the source)

7.1 Pitch Shift / Freeze

It's possible to change the granular type of sample rotating and pressing the encoder on the right of the display. The item “Freeze or Pitch” is visible on the display, under the item “GRANULAR”.

7.2 Amount

It allows to set up the quantity of effect to be added to the source signal. The command is done rotating the potentiometer nr. 1 (see 1.0 front panel). When the Amount is set on zero the input signal will be the same as the one on output, so the effect won't be audible. The more you increase the potentiometer the more the effect will be marked. It's possible to reset the amount instantly pressing the encoder on the right of the display.

7.3 Speed

To set up the Speed it's necessary to rotate the potentiometer nr. 2 (see 1.0 front panel). It allows to set up the velocity of Granular sample.

7.4 Length

To set up the Length it's necessary to rotate the potentiometer nr. 3 (see 1.0 front panel). It allows to set up the Pitch or Freeze of sample length. Pitch shift by continuously sampling grains and playing them at altered speed.

7.5 D/W

It allows to set up the effects' quantity to add to the source signal, the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When the D/W is set on zero, the input signal will be the same as the one in the output, then all effects won't be audible. When the D/W is at maximum, the input signal will totally be over the effects and in the output, there will be only the processed signal.

This D/W general function is available in all the effects menu and in the Noise menu and it's always corresponding at the potentiometer nr. 4.

7.6 Off

It allows to mute the input signal of effects, this feature allows to play the natural sound effects evolution until the end while the original input signal is active.

It's possible to mute the effects pressing the encoder on the right of the display and the item “OFF” is visible on the display. Press the encoder again to reactivate the input signal of the effects.

8.0 BITCRUSHER

To get into the “Bitcrusher” menu, make sure that the toggle switch is placed on the left (see 1.0 front panel), then press once the encoder on the left of the display (the item “menu” will be highlighted) and afterwards rotate it until it is placed on the required menu.

In the Bitcrusher section the setup of the same effect can be managed. In the SX-I all the effects can work simultaneously. It is possible to edit the “Freq.” (Sampling Frequency) and the “Bit” (intensity of the signal) and the general “D/W” (quantity of the effect to be added to the source).

8.1 Freq.

It allows to set up the sampling frequency of the audio signal in output from SX-I. The command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When the potentiometer is at the minimum, the input signal will be the same as the one in the output and the sampling frequency will be 44 KHz, the effect won't be audible, the more we increase the potentiometer the more the sampling frequency will decrease and the effect will be marked.

8.2 Bit

It allows to set up the intensity by bit of the audio signal sampling in output from SX-I. The command can be done rotating the potentiometer nr. 2 (see 1.0 front panel). When the potentiometer is at the minimum, the input signal will be the same as the one in the output and the sampling bit will be 16 the effect won't be audible, the more you increase the potentiometer the more the bit will decrease and the effect will be marked.

8.3 D/W

It allows to set up the effects' quantity to add to the source signal, the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When the D/W is set on zero, the input signal will be the same as the one in the output, then all effects won't be audible. When the D/W is at maximum, the input signal will totally be over the effects and in the output, there will be only the processed signal.

This D/W general function is available in all the effects menu and in the Noise menu and it's always corresponding at the potentiometer nr. 4.

9.0 LFO

To get into the "LFO" menu, make sure that the toggle switch is placed on the left (see 1.0 front panel), then press once the encoder at the right of the display and afterwards rotate it until it is placed on the required menu.

In the LFO section the same effect's setup can be managed. In the SX-I all the effects can work simultaneously. It's possible to edit the "Amount" (quantity of the effect to be added to the source), the "Freq." (oscillator frequency), to activate the VCF (cut frequency of the low pass filter in filter menu), and the general "D/W" (quantity of the effect to be added to the source).

It's possible to vary the LFO waveform between SINE, SAWTOOTH / REVERSESQUARE, TRIANGLE, PULSESAMPLE HOLD. To edit the waveform, it is necessary to rotate the encoder on the right of the display, the used waveform will be visible on the display under the item "LFO" of the menu.

9.1 Amount

It allows to set up the LFO's quantity that can be added to the source signal. The command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When the Amount is set on zero, the input signal will be the same as the one in output, the effect won't be audible, the more we increase the potentiometer the more the effect will be marked.

9.2 Freq.

It allows to set up the oscillator frequency of LFO. The command can be done rotating the potentiometer nr. 2 (see 1.0 front panel). When the potentiometer is at the minimum, the input signal will be the same as the one in output and the effect won't be audible, the more you turn up the potentiometer the more the frequency will increase and the amplitude changes will be fast.

9.3 VCF

It allows to use the LFO oscillator for command the cut frequency of the lowpass filter of the filter menu (see 11.0 Filters), The command can be done rotating the potentiometer nr. 3 (see 1.0 front panel).

If you want to make the VCF work you must enable the filter of the filter menu and setting up the cut frequency of the "LowPass".

When the potentiometer is at the minimum, the cut frequency don't change, the more you turn up the potentiometer the more the cut frequency change and it will be fast.

9.4 D/W

It allows to set up the effects' quantity to add to the source signal, the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When the D/W is set on zero, the input signal will be the same as the one in the output, then all effects won't be audible. When the D/W is at maximum, the input signal will totally be over the effects and in the output, there will be only the processed signal.

This D/W general function is available in all the effects menu and in the Noise menu and it's always corresponding at the potentiometer nr. 4.

9.5 Setup Page

To access the setup page of the LFO menu you must press and hold for more than 4 seconds the encoder located on the right of the display.

In this page you can activate the MIDI sync of the LFO oscillator phase.

If there is an incoming midi clock signal and the "MIDI Sync" setting is set to "ON", the phase of the LFO oscillator will be set to zero whenever a midi clock beat is received.

The beat reception will be visible on the display next to the "LFO" menu item.

10.0 FLANGER

To get into the "Flanger" menu, make sure that the toggle switch is placed on the left (see 1.0 front panel), then press once the encoder on the left of the display (the item "menu" will be highlighted) and afterwards rotate it until it is placed on the required menu.

In the Flanger section the same effect's setup can be managed. In the SX-I the effects can work simultaneously. It is possible to edit the "Amount" (quantity of the effect to be added to the source), the waveform time of flanger and the general "D/W" (quantity of the effect to be added to the source).

10.1 Amount

It allows to set up the Flanger's quantity that should be added to the source signal. The command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When the Amount is set on zero, the input signal will be the same as the one in output, the effect won't be audible, the more you turn up the potentiometer the more the effect will be marked.

10.2 Tempo

The Flanger effect's time can be varied rotating the encoder on the right of the display. Values vary from 0 seconds (the flanger oscillator doesn't generate the sine wave of the effect) to 1.55 seconds.

10.3 D/W

It allows to set up the effects' quantity to add to the source signal, the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When the D/W is set on zero, the input signal will be the same as the one in the output, then all effects won't be audible. When the D/W is at maximum, the input signal will totally be over the effects and in the output, there will be only the processed signal.

This D/W general function is available in all the effects menu and in the Noise menu and it's always corresponding at the potentiometer nr. 4.

11.0 FILTERS

To get into the "Filters" menu, make sure that the toggle switch is placed on the left (see 1.0 front panel), then press once the encoder on the left of the display (the item "menu" will be highlighted) and afterwards rotate it until it is placed on the required menu.

You can select the type of filters to be used between Hi-Pass Low-Pass and MOOG Ladder Filter by changing the "Filters" setting in the configuration page (see 11.8 Setup page). In the Filters section you can filter the output signal with filters and resonances.

11.1 On / Off

It is possible to turn on or off the filters pressing the encoder on the right of the display. The item "ON or OFF" is visible on the display, under the item "FILTERS".

11.2 HiPass

This parameter is only available when the filter type used is set to "HI-LOW" (see 11.8 Setup page). It allows to filter in high pass the output signal. The command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When the HiPass is set on zero, the signal won't be filtered, the frequency is set to $-\infty$ when the HiPass is set on maximum the frequency is set to $+\infty$ (total cutoff).

11.3 LowPass

This parameter is only available when the filter type used is set to "HI-LOW" (see 11.8 Setup page). It allows to filter in low pass the output signal. The command can be done rotating the potentiometer nr. 3 (see 1.0 front panel). When the LowPass is set on maximum, the signal won't be filtered, the frequency is set to $+\infty$ when the LowPass is set on zero the frequency is set to $-\infty$ (total cutoff).

11.4 Resonance

It allows to set up the resonance db corresponding to the cut frequency. The command can be done rotating the potentiometer nr. 2 for the HiPass filter and nr. 4 for the LowPass filter (see 1.0 front panel). When Resonance is set on zero, the filter's cut won't have resonance peaks. When the potentiometer is turned up, the resonance increases until a maximum of 5db.

11.5 Frequency

This parameter is only available when the filter type used is set to "MOOG LADDER" (see 11.8 Setup page). It allows to filter in low pass the output signal. The command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When the LowPass is set on maximum, the signal won't be filtered, the frequency is set to $+\infty$ when the LowPass is set on zero the frequency is set to $-\infty$ (total cutoff).

11.6 Drive

This parameter is only available when the filter type used is set to "MOOG LADDER" (see 11.8 Setup page). It allows to add a gain the filter input. The command can be done rotating the potentiometer nr. 3 (see 1.0 front panel).

When drive is set to zero the input signal to the filter will be attenuated, when it is set to max a gain of + 2db will be applied to the input signal.

11.8 Setup Page

To access the FILTER menu setup page, hold down the encoder positioned on the right of the display for more than 4 seconds.

In this page it is possible to modify the type of filters used, when the "Filters" setting is on "HI-LOW" in the filters menu it will be possible to modify the values of the high pass and low pass filters and their resonances. When the "Filters" setting is on "MOOG LADDER" in the filters menu you will be able to change the values of the MOOG FILTER, the low pass filter cutoff frequency, its resonance, Passband and Drive.

If the "Filters" setting is set to MOOG LADDER, you can change the interpolation type of the filter from "Linear" to "Fir".

12.0 DROP

To get into the "Drop" menu, make sure that the toggle switch is placed on the left (see 1.0 front panel), then press once the encoder on the left of the display (the item "menu" will be highlighted) and afterwards rotate it until it is placed on the required menu.

In the Drop section the same effect's setup can be managed. This special effect creates all the tension you need in your music for the drop. It's possible to edit the "Synth" (oscillator amplitude), It's possible to vary the OSC1 waveform between SINE, SAWTOOTH / REVERSESQUARE, TRIANGLE, PULSESAMPLE HOLD and the Drop effect amount. To edit the waveform, it is necessary to rotate the encoder on the right of the display, the used waveform will be visible on the display under the item "DROP" of the menu.

12.1 Synth

It allows to set up the Oscillators volumes that should be added to the source signal. The command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When the Synth is set on zero, the input signal will be the same as the one in output, the Oscillators won't be audible, the more you turn up the potentiometer the more the Oscillators will be marked.

12.2 OSC Freq.

It allows to set up the basic frequency of the modulated oscillators. The command can be done rotating the potentiometer nr. 2 (see 1.0 front panel). When "OSC freq." is set on zero, the synthesizer generates a wave with the frequency corresponding to 0 Hz. Turning up the potentiometer at this frequency, the potentiometer's value is added until a maximum of 1000Hz.

12.3 Drop

It allows to set up the Drop's quantity that should be added to the source signal. The command can be done rotating the potentiometer nr. 3 (see 1.0 front panel). This special effect creates all the tension you need in your music. When the Drop is set on zero, the input signal will be the same as the one in output, the effect won't be audible, the more you turn up the potentiometer the more the effect will be marked.

12.4 D/W

It allows to set up the effects' quantity to add to the source signal, the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When the D/W is set on zero, the input signal will be the same as the one in the output, then all effects won't be audible. When the D/W is at maximum, the input signal will totally be over the effects and in the output, there will be only the processed signal.

This D/W general function is available in all the effects menu and in the Noise menu and it's always corresponding at the potentiometer nr. 4.

12.5 Off

It allows to mute the input signal of effects, this feature allows to play the natural sound effects evolution until the end while the original input signal is active.

It's possible to mute the effects pressing the encoder on the right of the display and the item "OFF" is visible on the display. Press the encoder again to reactivate the input signal of the effects.

13.0 COMPRESSOR

To go into the "Compressor" menu, make sure that the toggle switch is on the left (see 1.0 front panel), so click one time the encoder on the left of the display (the item "menu" will be highlighted) and then turn it until it is arranged in the required menu.

In the Compressor section, it is possible to change the value of the Auto Volume Control (AVC / Compressor).

13.1 On / Off

It is possible to turn on or off the compressor pressing the encoder on the right of the display. The item "ON or OFF" is visible on the display, under the item "COMPRESSOR".

13.2 Pre / Post

It allows to set up the Compressor signal position to Pre (before effects) and Post (after effects).

13.3 Gain

It allows to edit the maximum gain that can be applied for expanding, and can take one of three values: 0dB, 6.0dB and 12dB.

To change this value it is necessary to be placed on the Gain, rotate the encoder on the right of the display then press the same encoder once.

13.4 Resp

It allows to edit the integration time for the compressor and can take four values: 0ms, 25ms, 50ms or 100ms. Larger values average the volume over a longer time, allowing short-term peaks through.

To change this value it is necessary to be placed on the Resp, rotate the encoder on the right of the display then press the same encoder once.

13.5 HardLim

It allows to edit the Hard Limit function, if hardLimit is OFF, a 'soft knee' compressor is used to progressively compress louder values which are near or above the Threshold (the louder they are, the greater the compression). If it is ON, a hard compressor is used (all values above the Threshold are the same loudness).

To change this value it is necessary to be placed on the HardLim, rotate the encoder on the right of the display then press the same encoder once.

13.6 Threshold

It allows to edit the threshold of the compressor, the command can be done rotating the potentiometer nr. 2 (see 1.0 front panel).

The value is in dBFS and can take from 0 to -60.

13.7 Attack

It allows to edit the Attack, the command can be done rotating the potentiometer nr. 3 (see 1.0 front panel). Attack is controlling the rate of decrease the gain when the signal is over Threshold, in dB/s.

13.8 Decay

It allows to edit the Attack, the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). Decay controls how fast gain is restored once the level drops below Threshold, again in dB/s. It is typically set to a longer value than Attack.

14.0 MIXER

To go into the "Mixer" menu, make sure that the toggle switch is on the left (see 1.0 front panel), so click one time the encoder on the left of the display (the item "menu" will be highlighted) and then turn it until it is arranged in the required menu.

In the Mixer section, it is possible to turn on or off the Noise Gate, change the audio to Stereo or Mono and the Surround parameters.

14.1 Noise Gate On / Off

It is possible to turn on or off the noise gate of input signals (see 27.0 general diagram), rotating and pressing the encoder on the right of the display.

The item "NoiseGate: ON/OFF" is visible on the display, under the item "MIXER".

14.2 Stereo / Mono

It is possible to vary the output signals between Stereo and Mono, rotating and pressing the encoder on the right of the display

The item "Audio: STEREO / MONO" is visible on the display, under the item "MIXER".

14.3 Surround

The surround parameter allows you to enable the virtual process to provide the sound with a broader and deeper stereo image. (even with mono input).

15.0 PHASER

To get into the "Phaser" menu, make sure that the toggle switch is placed on the left (see 1.0 front panel), then press once the encoder on the left of the display (the item "menu" will be highlighted) and afterwards rotate it until it is placed on the required menu.

In the Phaser section the setup of the same effect can be managed. In the SX-I all the effects can work simultaneously. It's possible to edit the "Amount" (the effect's quantity to add to the source), the frequency of the phaser filters, the oscillator frequency of LFO and the general "D/W" (quantity of the effect to be added to the source).

15.1 Amount

It allows to set up the quantity of effect to be added to the source signal. The command is done rotating the potentiometer nr. 1 (see 1.0 front panel). When the Amount is set on zero the input signal will be the same as the one on output, so the effect won't be audible. The more you increase the potentiometer the more the effect will be marked. It's possible to reset the amount instantly pressing the encoder on the right of the display.

15.2 Freq.

It allows to set up the frequency filters frequency of phaser. The command can be done rotating the potentiometer nr. 2 (see 1.0 front panel).

15.3 LFO

It allows to set up the the oscillator frequency of LFO in the phaser effect.
The command can be done rotating the potentiometer nr. 3 (see 1.0 front panel).

15.4 Filter stage number "st."

Controls the number of phase shifter stages. Accepted values are: 2, 4, 6, 8, 10, 12. The more stages the more resonant notches are produced.

To vary the "st." value it's necessary to rotate the encoder on the right of the display.

15.5 D/W

It allows to set up the effects' quantity to add to the source signal, the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When the D/W is set on zero, the input signal will be the same as the one in the output, then all effects won't be audible. When the D/W is at maximum, the input signal will totally be over the effects and in the output, there will be only the processed signal.

This D/W general function is available in all the effects menu and in the Noise menu and it's always corresponding at the potentiometer nr. 4.

20.0 NOISE

To get into the "Noise" menu, make sure that the toggle switch is placed on the right (see 1.0 front panel), then press once the encoder on the left of the display (the item "menu" will be highlighted) and afterwards rotate it until it is placed on the required menu.

In the Noise section the synthesizer's setup that generates the White and Pink noise can be managed. It is possible to edit the quantity of "White" (white noise), of "Pink" (pink noise), both can be used simultaneously and the general "D/W" (quantity of the effect to be added to the source).

20.1 White

It allows to set up the quantity of white noise that should be generated. The command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When the White is set on zero, the synthesizer doesn't generate any sound, vice versa if you turn up the potentiometer, the white noise's db can be increased.

20.2 Pink

It allows to set up the quantity of Pink noise that should be generated. The command can be done rotating the potentiometer nr. 2 (see 1.0 front panel). When the Pink is set on zero, the synthesizer doesn't generate any sound, vice versa if you turn up the potentiometer, the pink noise's db can be increased.

20.3 D/W

It allows to set up the effects' quantity to add to the source signal, the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When the D/W is set on zero, the input signal will be the same as the one in the output, then all effects won't be audible. When the D/W is at maximum, the input signal will totally be over the effects and in the output, there will be only the processed signal.

This D/W general function is available in all the effects menu and in the Noise menu and it's always corresponding at the potentiometer nr. 4.

21.0 DRUMS

To get into the "Drums" menu, make sure that the toggle switch is placed on the right (see 1.0 front panel), then press once the encoder on the left of the display (the item "menu" will be highlighted) and afterwards rotate it until it is placed on the required menu.

In the Drums section, synthesis' setup of the percussive sound can be managed. It is possible to turn on or off the synthesizer, editing the Frequency (percussion's frequency), editing the "Length" (sound's length), the "Second Mix" (sound's duplication) and the "Pitch".

The sound is generated through the MIDI IN signal from a keyboard or from a sequencer. The used MIDI channel can be varied editing the channel parameter in the "Controller" menu (see 25.0 controller).

As for every synthesizer, from the SX-I it is possible to add to the synthesis all the effects available in the effects' menu (visible when the toggle switch is placed on the left, see 1.0 front panel).

21.1 On / Off

It is possible to turn on or off the synthesizer of drums pressing the encoder on the right of the display. The item "ON or OFF" is visible on the display, under the item "DRUMS". When the synthesis of Drums or Synth is activated, the item "MIDI" will appear on the display instead of Peak Level (see 3.0 Display).

21.2 Frequency

It allows to set up the percussion's frequency. The command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When "Frequency" is set on zero, the synthesizer generates a percussion with a frequency correspondent to the midi note received. Increasing the potentiometer to this frequency, you can add the potentiometer's value until a maximum of +150hz

21.3 Length

It allows to set up the length of the percussive sound tail. The command can be done rotating the potentiometer nr. 2 (see 1.0 front panel). When "Length" is set on zero, the synthesizer generates a dry percussion without any release. If the potentiometer is increased, you will have a fade out of 450ms maximum.

21.4 Second Mix

It allows to double the percussive sound. It is possible to manage the sound's quantity added to the original one. The command can be done rotating the potentiometer nr. 3 (see 1.0 front panel). When "Second Mix" is set on zero the synthesizer generates a single percussion. If the potentiometer is increased the additional sound is added to the original one until it is doubled when the potentiometer is set on the maximum. This function generates a sound like two identical percussions played almost simultaneously.

21.5 Pitch

Pitch allows to edit the synthesized sound's pitch, changing the timbre. The command can be done rotating the potentiometer nr. 4 (see 1.0 front panel).

22.0 SYNTH OSC

To get into the "Synth OSC" menu, make sure that the toggle switch is placed on the right (see 1.0 front panel), then press once the encoder on the left of the display (the item "menu" will be highlighted) and afterwards rotate it until it is placed on the required menu. In the "Synth OSC" section you can manage the synthesis setup of the oscillator modulable on frequency (FM) or amplitude (AM). It is possible to turn on or off the synthesizer, to edit the Oscillators frequency (basic frequency of the modulated oscillators) and Amplitude.

It's possible to vary the waveform between SINE, SAWTOOTH / REVERSESQUARE, TRIANGLE, PULSESAMPLE HOLD. To edit the waveform, it's necessary to rotate the encoder on the right of the display to the OSC requested waveform and then it's necessary to rotate the encoder on the left of display, the used waveform will be visible on the display under the item "Synth OSC" of the menu.

The sound is generated through the MIDI IN signal from a keyboard or from a sequencer. The used MIDI channel can be varied editing the channel parameter inside the "Controller" (see 25.0 controller).

As for all the sounds synthesized from the SX-I, it's possible to add to the synthesis the effects available in the effect's menu (visible when the toggle switch is placed on the left, see 1.0 front panel).

22.1 On / Off

It is possible to turn on or off the synthesizer pressing the encoder on the right of the display. The item "ON or OFF" is visible on the display, under the item "SYNTH OSC". When the synthesis of Drums or Synth is activated, the item "MIDI" will appear on the display instead of Peak Level (see 3.0 Display)

22.2 OSC 1/2

It allows to set up the Oscillators amplitude. The command can be done rotating the potentiometer nr. 1 for the OSC1 and nr.2 for the OSC2 (see 1.0 front panel). When the OSC is set on zero the Oscillator is disabled, the more you turn up the potentiometer the more the Oscillators amplitude will be marked.

22.3 Tune

It allows to increase the base frequency of the OSC2. The command can be done rotating the potentiometer nr. 3 (see 1.0 front panel).

It creates an de-tune effect and generates a lot of harmonic waves typical of the analog synthesizers.

22.4 Freq.

It allows to set up the basic frequency of the modulated oscillators. The command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When "Freq." is set on zero, the synthesizer generates a wave with the frequency corresponding to the received midi note. Turning up the potentiometer at this frequency, the potentiometer's value is added until a maximum of +800Hz.

23.0 MODUL FM

To get into the "Modul FM" menu, make sure that the toggle switch is placed on the right (see 1.0 front panel), then press once the encoder on the left of the display (the item "menu" will be highlighted) and afterwards rotate it until it's placed on the required menu.

In the "Modul FM" section you can manage the synthesis setup of the oscillator frequency modulator (FM). It's possible change the VCO amplitude, to edit the frequency of modulator oscillator, the "Offset" (add a DC offset, from -1.0 to +1.0) and the octave sensibility.

It's possible to vary the waveform between SINE, SAWTOOTH / REVERSESQUARE, TRIANGLE, PULSESAMPLE HOLD. To edit the waveform, it's necessary to rotate the encoder on the right of the display, the used waveform will be visible on the display under the item "Modul FM" of the menu.

The sound is generated through a MIDI IN signal from a keyboard or from a sequencer. The used MIDI channel can be varied editing the channel parameter in the "Controller" menu (see 25.0 Controller).

As for all the sounds synthesized from the SX-I, it's possible to add to the synthesis the effects available in the effect's menu (visible when the toggle switch is placed on the left, see 1.0 front panel).

23.1 VCO

It allows to set up the Oscillators amplitude. The command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When the VCO is set on zero the FM modulation is disabled, the more you turn up the potentiometer the more the FM modulation will be marked.

23.2 Freq.

It allows to set up the frequency of the modulator oscillator. The command can be done rotating the potentiometer nr. 2 (see 1.0 front panel).

23.3 Offset.

It allows to set up the Offset of the modulator oscillator. The command can be done rotating the potentiometer nr. 3 (see 1.0 front panel).

This parameter add a DC offset, from -1.0 to +1.0.

23.4 Octaves

It allows to set up the sensibility of FM modulation in Octave. the command can be done rotating the potentiometer nr. 4 (see 1.0 front panel).

When the Octave is set on zero the FM modulation sensibility is low, the more you turn up the potentiometer the more the FM modulation sensibility will be marked until +12 Octave.

24.0 ENVELOPE

To get into the “Envelope” menu, make sure that the toggle switch is placed on the right (see 1.0 front panel), then press once the encoder on the left of the display (the item “menu” will be highlighted) and afterwards rotate it until it is placed on the required menu.

In the “Envelope” section envelope generator’s setup can be managed. It is possible to edit the Attack (attack time of the note), the “Decay” (decadence time of the note), the “Sustain” (note’s volume) and the “Release” (note’s tail).

In the following diagram, there are indicated standard phases of a envelope:

Modify a signal with a DAHDSR (Delay Attack Hold Decay Sustain Release) envelope.



24.1 Attack

It allows to set up the time of the note’s delayed attack. The command can be done rotating the potentiometer nr. 1 (see 1.0 front panel). When Attack is set on zero, the attack is immediate. When the potentiometer is turned up, the time increases generating a “fade in” effect until a maximum delay of 30ms.

24.2 Decay

It allows to set up the note’s decadence before arriving at the sustain’s level. The command can be done rotating the potentiometer nr.2 (see 1.0 front panel). When Decay is set on zero, the note reach at the same value of the sustain. When the potentiometer is turned up, the time increases generating a “fade” effect at the sustain point until a maximum delay of 200ms

24.3 Sustain

It allows to set up the sustain level of the note. The command can be done rotating the potentiometer nr. 3 (see 1.0 front panel). When Sustain is set on zero, the sustain’s phase of the envelope won’t be audible. When the potentiometer is turned up, the sustain increases until a maximum of 0db.

24.4 Release

It allows to set up the delay in the note’s closing. The command can be done rotating the potentiometer nr. 4 (see 1.0 front panel). When the Release is set on zero the detachment is immediate. When the potentiometer is turned up, the time increases generating a “fade out” effect until a maximum delay of 200 ms.

25.0 CONTROLLER

To get into the “Controller” menu, make sure that the toggle switch is placed on the right (see 1.0 front panel), then press once the encoder on the left of the display (the item “menu” will be highlighted) and afterwards rotate it until it is placed on the required menu.

When you are inside the “Controller” menu, the SX-I becomes a MIDI IN-OUT controller both analogical and USB. It is possible to edit the used channel and this parameter involves the editing of the used channel also by Drums and Synth. All the potentiometer and the encoders, as the button and the toggle switch, become mappable in midi out. On the display the Peak’s indications, Clip and the potentiometers’ slashes are mappable in midi in.

25.1 Selection of the MIDI channel

To select the midi channel used in the Controller’s function and of Synthesis, it is necessary to rotate the encoder placed on the right of the display. The available channels are 8, from ch. 1 to 8.

If you set up the midi channel nr.9, the item “Midi Ch. 9 External.” will appear on the display.

In this modality, the SX-I receives midi CC signals for the regulation via external controller of the GLOBAL section (see point 4.0), both in input and output. The channel midi 9 cc 70 corresponds to the D/W, the cc 71 corresponds to the Filter, the cc 72 to the Reverb, the cc 73 to the Delay. The editing of the GLOBAL parameters remains in effect in each menu, both effects and synth and the Drums & Synth synthesis is commanded only by the midi notes received on the channel nr. 1.

It is a specific function for the controllers and it’s compatible with each midi controller that uses channels and cc mentioned above.

25.2 Activation Controller

To activate or deactivate the Controller’s function exclusive of all the potentiometers, encoders and switch of the SX-I, it is necessary to keep pressed for more than 3 seconds the encoder placed on the right of the display. When the activation is done, on the display, near the midi channel, it will appear a “!” (exclamation point).

26.0 BATTERY (Tabletop Version Only).

When the level of the battery is not sufficient, it will start to blink the battery’s symbol. The SX-I autonomy is approximately of 6 hours of functioning; the recharge should be done through a USB connection (from a computer or from a charger) and it needs 2 hours to be completed.