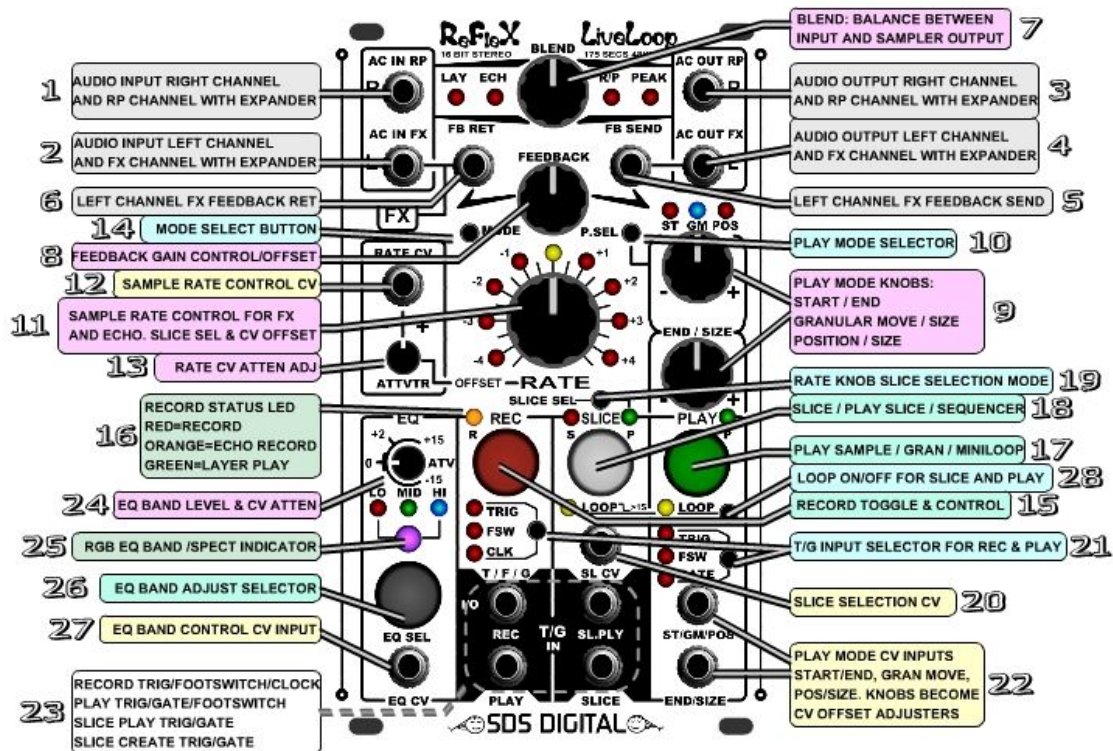


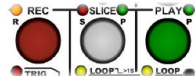
Reflex Live Loop Quick Start guide



- 1 Right Channel Audio Input - 10Vp-p max
- 2 Left Channel Audio Input - 10Vp-p max. Normalized to Right channel also if Right input not used
- 3 Right Channel Mix Audio Output - 10Vp-p
- 4 Left Channel Mix Audio Output - 10Vp-p
- 5 Left Channel "FX" Feedback Send - 10V p-p
- 6 Left Channel "FX" Feedback Return - Mixes with Left Channel input for sampling / monitoring
- 7 Blend Control - Balances Mix between Audio Input and Sampler Output 0dB gain to mute each side.
- 8 Feedback Gain Control - Controls Feedback level on both Audio Channels. EQ maxed: mute to +15dB
- 9 PlayFX Mode Knobs - Start/End, G-Move Speed & Direction/Grain Size, Position/Size
- 10 PlayFX Mode Selector - Selects One of 3 Modes Start/End, GMove, Position/Size for knobs below it.
- 11 Sample Rate Knob - Sample Rate + CV offset for RP Samples, PlayFX, and Slices. Selector for Clock Divider, and Slice Play Selector. Range +/- 5 octaves (/32, x32) (1.5Ks/s to 1536Ks/s sim) 1V/octave.
- 12 Sample Rate CV Input - Used with Rate attenuverter for gain and Rate Knob for offset.
- 13 Rate CV Attenuverter - Adjusts/Inverts Gain of CV input to Rate Control. +/- 5V
- 14 Mode Select Button - Selects Reflex Operation Mode (Layer, Echo, R/P) and turns on/off Peak Slicer.
- 15 Record Toggle and Control Button - Starts Record, Sets Echo/Layer Time, Adds Layers, Switches Echo to Infinite Echo, Toggles R/P Sampler overdub/punch-in, Arms Sample Steps, Stops Sample Play
- 16 Record/Play/Echo/Layer/Slice Groove Status Indicator
- 17 PlayFX Button - Enables playing of miniLoop/Granules pulled from present RP Sample rec/playing
- 18 Slice Button - Manual Create / Play Slices button. Slice Groove Sequence entry.
- 19 Slice Select Button - Toggle Rate Knob to select 1 of 16 Slices to play. (Acts as an offset to Slice CV.)
- 20 Slice Selection CV - Relative Voltage/Slice Selector, adds to Slice # (Selected by Rate Knob as SL.SEL)
- 21 Trig/FootSwitch/Clock selector for Record Control, Trig/FootSwitch/Gate selector for PlayFX.
- 22 PlayFX CV Inputs - Positive Offsets for The 2 PlayFX knobs above. 0 - 5V
- 23 Trig/Gate/Clock/Footswitch inputs, Clock Output - Logic level (0-5V) inputs active at 0.6V (except FSW)
- 24 EQ Band Level and CV Attenuverter - Un-Jacked offset allows manual adjustment. +/- 15dB/band.
- 25 EQ RGB Spectrum/Band adjustment indicator - Spectrum analyzer from Audio Output Stage.
- 26 EQ Band Selector - Select EQ Bands Low/Mid/High/All/Off. Held>1 second toggles to Unipolar input
- 27 EQ Band Control CV Input - -5V to +5V gives -15dB to +15db, or in unipolar mode 0 to 5V: -15 to +15dB
- 28 Loop On/Off - For PlayFX and Slice. Tap to toggle PlayFX loop, Hold to toggle Slice loop (less used)

Congrats on purchasing the Reflex LiveLoop! The Reflex has been designed to be simple and intuitive to operate using stepped button sequences that are similar for each mode of operation. More complex functions are easily accessible from the panel buttons, and even more in depth functions are available for the power user, without complexity to the simplicity. This short guide will get you up and sampling in no time!

The 3 Sample control Buttons:



Red: Record/Play/Set timing/Stop

The Red record button simply allows the creation of a sample in all modes, then setting loop size, playing/echoing a loop, and stopping play/record. See below (3 Sampling Modes) for how the Record button operates in each of the 3 sampling modes.

White: Slice/Play Slice

The White Slice Button enables slicing up a sample during any mode at any time, or playing a slice.

Slicing and Playing Slices:

If Play select is off (PlaySel "P" LED not illuminated) the Slice button creates slices (up to 400) when tapped when a sample is playing or recording.

Pressing the "Slice Select" button (above slice button) converts the slice button to a slice play button and the Rate Knob to a selector. This will allow for selection of the first 16 slices created using the Rate Knob, and Slice CV will offset slice to play (0-5V @ #Slices/5 per Volt), while SL.PLY triggers Slice Play.

The LED circle will indicate the slice being selected as follows

- Red Leds 1-4 and 5-8 display the first 8 slices, and with the center yellow LED illuminated slices 9-12 and 13-16 are indicated.

Holding the slice button for > 1second will exit the slices playing back to original sample playing/recording. Holding the slice button longer than 4 seconds will clear all slices created and reset the slice counter to slice#1. LED circle indicates this as all on.

Peak Slicing:

Use the Mode button to select PEAK. The Mode will return to the last selected but with the PEAK LED illuminated. **If enabled before New Recording, Record button will "Arm" for next audio Peak. Any audio "rise" within a short time will trigger the creation of a slice. This is especially useful for drums, or other "stabby" sounds, but works well with voice and most types of non-ambient music. The audio level is measured on the outputs, so the input and sample playing will trigger a slice creation. To end Peak Slicing, just tap the mode button once.

The Slice Play CV input (SLC CV) will allow access to slice beyond the first 16, but the slice selector will still set a maximum 16 slice offset that is added to the CV value. This allows a sequenced slice selection, for example, to be entirely shifted up to +16.

The voltage on the CV input is division based. If there are only 5 slices for example, each 1 volt increase will access a new slice. If there are 400 slices on the other hand, very small differences in CV voltage will access different slices.

There are 2 separate trigger inputs for slices:

SLICE: Creates a new slice on each rising edge

SL.PLY: Plays a slice currently selected by Rate knob in Slice select mode + SLICE CV input.

Slice Loop:

If **Slice Loop** is on (toggled by holding the Loop button>1 second) the slice will continue to loop (depending on the source from which it was created) at the point where another slice was created, ending this one.

If **Slice Loop** is off, the slice will just continue playing through the sample from which it was created, looping at the sample's loop point. This can be useful for playing through a sample from a specific point.

Most of the time Slice Loop will be on. See the User manual for more on creating / playing Slices, Loop types, 1-Shot Slice Play, and Peak Slicing.

If a Slice is Modified by PlayFX (tap playFX then tap Rec immediately to save) Loop off allows enlargement.

Green: PlayFX

The Play button allows playing a sample, layer, echo space, or slice with the ability to modify start/end points or position/size of a sample for playing.

Tapping the Play button will "copy" the presently playing sample into the PlayFX controls. These controls are the 2 knobs on the right side of the panel.

There are 3 Modes for these control knobs that can be selected by the Play Sel button:

Start/End (SE): The top knob controls Start point and the bottom knob controls End point of the PlayFX Loop

G-Move (GM): The top knob controls Speed and direction of a "Granular" Loop. The bottom knob controls the Size of the Grain Loop up to 1/4 second.

Position/Size (PS): The top knob controls the loop start position and the bottom knob controls the Size of the PlayFX loop.

There are 2 ways to exit PlayFX, back to the sample currently playing/recording:

1-Hold the Play Button: This will stop and reset the PlayFX entirely.

2-Turn off the Play Loop indicator by tapping the Loop button (below the Play Button). This will cause the PlayFX to not loop, but drop out and return to the sample that was playing when PlayFX button was pressed.

***Note that the sample never stopped so will still be in sync. *PlayFX can play inside of a Slice already playing.**

Trigger/Gate inputs for Record, Slice, Slice Play, & PlayFX:

The accompanying Trigger/Gate inputs act identically to the 3 Sample control buttons when the inputs are set to Trigger mode. (Record & Play sections)

The Slice and Play Slice inputs act as triggers only, responding on the rising edge of an input signal.

Sampling Modes:

There are 3 Sampling Modes on the Reflex. Select Sampling mode using the small mode button. (Skip by "Peak" when selecting)

Layer:

This mode enables controlled layering of sound based on timing from the first tap on the record button and the second. For normal use, FeedBack should be at or near maximum, and EQ be centered on all bands.

Loop size can be "grown" by not tapping until past the first loop. i.e.

Hold Record button to reset (if playing already)

Tap 1: Starts record of sample

Tap 2: Sets loop time and begins play of the sample from the beginning of record.

Double Tap: Begins a new layer of recording.

If tapped before/on the loop time, the layer size will remain the same

If tapped after the loop time, the new loop ending will set the new Layer time (x2, x3, x4 etc)

A single Tap will switch Layer to play only, if recording.

A triple tap (3 taps within 2 seconds) will play back one layer. This should be done between Loop points.

After that, when a new layer is created, the layer playing before the triple tap will be over-written.

Holding the Record Button will stop all recording and playing

The footswitch operates in exactly the same fashion as the button, a good "hands free" control. Select FSW using button above the REC trigger jack.

Adjusting the Rate control/Rate CV input will vary the loop time.

Echo/Delay:

This mode acts as a basic delay/echo, with the echo time being set by the second tap on the Record button. Once set, the loop size can only be changed using the Rate knob/Rate CV.

The three steps of operation are record, echo/delay, and infinite echo, i.e.

Hold Record button to reset (if playing already)

***Turn up the Feedback knob so the echo will recur. Set the EQ Attenuvertor to center (Led(s) will flicker off)**

Tap 1: Starts record.

Tap 2: Starts echo/delay by playing the audio just recorded. The Reflex will now echo any audio input by the delay time set by Tap 2

Tap 3: Starts Infinite echo. This will echo forever without decay.

Tap 4: Resumes Echo.

Tap 5+: Will toggle between infinite echo and echo.

Holding the record button will stop echo.

R/P Mode:

This mode is a simple sample recorder and player that also allows insertion and appending of recordings.

R/P mode will play the sample in a continuous loop, and allow addition to the size of the loop or punch-ins and overdubbing. i.e.

Hold Record button to reset (if playing already)

Tap 1: Starts Recording a sample

Tap 2: Switches to playing the sample just recorded

Tap 3: Starts an over-dub or punch-in at the point where the sample was playing. If not tapped again, the loop will be appended.

Tap 4: Ends the over-dub or punch-in started by Tap 3

The difference between over=dub and punch-in is the setting of the feedback knob. During a record while sample is playing, the output is fed back into the input via the feedback knob.

-If the knob is turned up, a sound-on-sound occurs which mixes incoming audio with the sample.

-If the knob is turned right down, only the new incoming audio will be recorded, effectively as a punch-in of sound, destroying the original.

Appending or "growing" the loop size: If you wish to add to the loop size, the Record button should be tapped before the loop happens.

Rate Control:

The Rate control knob sets the sample rate for Playback (-5 octaves to +5 octaves, /32 to x32, 1.5Ks/s to 1536Ks/s simulated) and Record (-5 octaves to 0 octaves, /32 to 0, 1.5Ks/s to 48Ks/s). *Note: Maximum Record Sample rate is 48Ks/s.

The LED circle indicates the start of a new octave as moved away from the center. There is a software detent at center (48Ks/s) indicated by the Yellow center LED and two Red Leds illuminating. This allows "locking" at maximum record rate/ maximum fidelity.
The Rate Knob turned to a lower sample rate can extend record time i.e. Down 1 octave to 24Ks/s extends record time to 6 minutes.

Rate Control "takeover" to/from PlayFX and Slice playing modes:

If the Sample Rate is changed during PlayFX looping or Slice Playing, then returned to the original RP sample playing, that sample rate will be recalled, and won't be changeable until:

- a) the knob passes the previous sample rate at which the sample is playing, or
- b) The knob is moved further away. The Reflex assumes the user wants to change up/down the rate and non-abruptly slides to it over a short time.

The required knob direction for re-alignment is indicated by two of the extreme end LEDs flickering 4 times.

This is to prevent the sample rate from jumping upon exit from another play mode.

This works the other way as well. If Slices playing had their Rate changed, then a return to play another slice will recall the Rate set then.

PlayFX Rates:

If PlayFX playing was stopped by holding the play button, it is reset and the next entry into PlayFX will be set to the present sample rate.

If PlayFX playing exited because the **Loop** indicator is turned off, then the set PlayFX rate will be recalled as it wasn't reset.

Rate Range Preference Setting:

Holding the Slice Sel button for > 3 seconds will toggle the rate knob into "Fine" mode. This changes down the Rate Knob's range to +/- 1 octave or

24Ks/s to 96Ks/s (*center limit at 48Ks/s during Recording/echoing at time of this guide) The Rate CV input's range will be unaffected.

This setting will be remembered for next power up of the Reflex LiveLoop.

Blend Control:

This control (Top of the panel) adjusts the blending of the input audio channels with the sampler output. It can be used for fading in/out a sample playing, or fading in/out the original incoming audio. This in no way affects the level of audio being recorded as that is set to modular 10V p-p range.

Feedback Control:

The feedback is routed from the sampler output back into the input as a separate mix for echo and layering decay. On the FX side, Left, there is a send and return insert that becomes interrupted when a plug is inserted into the Return jack. This allows for insertion of an external module such as a filter or gated distortion or reverb effect when using the FX (left) channel. The right channel is unaffected by the insert.

The feedback level controls the output level to the Send jack, so could be used as a sample only 3rd audio output for monitoring with headphones or +1 speaker channel. The feedback control is entirely non-dependant on the Blend control, so could be used as a "preview" output.

Likewise the Return input jack can be used as a 3rd input, but will disconnect the internal feedback on the Left channel.

*The name "FX" for the left channel has been appropriated for future upgrades and/or expansion as the module develops.

Audio input normalizing:

The audio input is normalized to the left channel. This means that if only one input is used, the left input jack will also drive the right channel input.

If the right channel is then jacked in, the two channels become independent of each other.

EQ Control:

Tapping on the large black Button will select EQ Bands, Low, Mid, High, All and off. They are selected for adjustment by the attenuvertor knob. If a CV is jacked into the EQ CV input, the attenuvertor controls the magnitude and polarity the CV will have on the selected band(s) of the EQ. An envelope can be added to the Reflex output and feedback this way.

When centered, the attenuvertor will cause the EQ LED(s) to blink off momentarily.

The RGB spectrum display will indicate the different bands corresponding to Red=Low, Green=Mid, and Blue=Hi. If adjusted, or CV driven, the RGB LED will display this adjustment, not the audio, until it stops.

Holding the EQ button > 1 second will toggle 0-5V CV mode or +/- 5V CV mode (default). There is no indication of this, other than the audio response (0V will almost mute the audio).

When in 0-5V mode, the attenuvertor becomes unipolar in each direction from 0.

Clocking:

Switching REC T/F/C to CLK will set Clock Mode for the input. This disables the Rate knob, so the "base rate" should be set before this, usually at center. Taps on the Record to step between Rec/Play/inf echo etc. will be delayed until a clock cycle (set /1 to /16 by holding the REC T/F/C button)

Clock can also be enabled during a sample already playing, to control it's Rate with a clock.

Mode Interaction Sheet

This page describes the different Modes and how they interact with each other.

Sample Mode/condition Mode Selected & Playing:	With PlayFX PlayFX will grab & play:	With Slicing/Slice Play Slice Created from:	With Record/Echo The way it will record:
R/P Sampler Mode	Will use entire sample as start and end points and loop at end of sample. If Recording, uses only recorded area (for quick FX recording, while recording)	If recording or playing: Will create sequential slices Playing the Slices will be as 1-Shot play, returning to RP sample, or silence if RP has been stopped. 1-Shot only works if slice LOOP is on.	Tap1: Starts Recording Tap2: Switches to Play Tap3: Toggle Rec. on/off Record will Punch-in or Over-dub depending on adjustment of the FeedBack control knob. Can append the original sample.
Echo Sampler Mode (Echoing/Infinite Echo)	Will use the last heard echo space (1 echo cycle) as start & end points and loop if Play Loop is on. If Play Loop is off, then will exit PlayFX back to presently playing/recording Sample.	If Echoing, uses point of playback for slice start, and point of recording for slice end, so slice = echo length. If Infinite Echo, uses the beginning and end of the echo as loop points but slice will play at play point in loop it was created at.	Tap1: Starts Recording Tap2: Sets Echo time and starts echoing Tap3: Toggles Infinite Echo and Echo. Feedback control knob adjusts echo decay time.
Layer Sampler Mode	Playing Layer: Will use present Layer as start and end points. Recording New Layer: Will also use present Layer but PlayFX antics will also be recorded onto it. If record started in playFX, will record for 1 layer, then stop.	If recording or playing a Layer at the time, then Slice will be created at the point in play and when played,, always Loops to start of that layer to keep sync. if needed. Slice Loop on/off has no effect.	Tap1: Starts Recording Tap2: Sets first Layer Time and begins playing, or if double-tapped, starts recording the new layer.. Tap3+ creates new Layers as play (1 tap), or Record (double tap) Triple Tap: Backs up one layer & sets to Play.
Initial Recording (1 Tap) (any Mode)	Will set playFX Start point at beginning of the Recording, and PlayFX End up to present record point. Good for instant reverse!	Slicing will be sequential throughout the initial record. Good for "live" Slicing and Peak Slicing incoming audio. Slices will play as "1-Shot" if slice LOOP is on.	Tap 1 Only Following taps will no longer be initial recording status. Hold Record Button>1 second to stop.
Slice Playing First	PlayFX Start/End, Pos/Size, and Gmove will work inside of / capture a slice. Subsequent Slices played will also have the running PlayFX modifications applied in same fashion. To save a modification, tap Play button, then tap record. PlayFX will exit.	A slice <i>can</i> be sub-sliced but new slices will append the slice count, not insert and shift slices. "Baby" Slices will follow the 1-Shot rule, if created from a 1-Shot Slice.	Slices playing at any Rate will be recorded exactly as heard if already recording. If Slice playing and Record button pressed: The slice is over-dubbed as a loop until record tapped again.
PlayFX First	Repeat Presses on Play button will re-start playFX loop at the same position offset from the moment it was captured in most cases.	Slicing a playFX miniLoop will set the Slice with the present playFX Start/End, Position/Size, or Grain settings so it exactly duplicates the sound upon Slice Play. <u>Slice Play</u> during a PlayFX will play over the PlayFX presently playing.	PlayFX playing at any Rate will be recorded exactly as heard, mixed with incoming of course. Feedback must be turned up so PlayFX can be fed back into sample recorder.
Clock Input (Rec T/F/C) Set to CLK mode	Secondarily affected: The echo or layer loop created in sync will be in sync at full playFX range	Secondarily affected: The echo or layer loop created in sync will sync the resulting slice. SL.PLY input With same Clk in will sync. Use the Slice T/G for continuous slice creation	Tap1: Starts record on next clock input always. Tap2: waits for clock/div set (1-16) before setting Echo/Layer/Loop size. Tap3+: following taps (depending on Mode) will wait for clock/div set. Rate Knob inactive.
Loop Clock Output (Rec T/F/C) Set to CLK mode	Clock Pulse output on each loop of playFX for ext sync. (+5V @ 1 K pullup) No Output in G-Move Mode SGS Sequencer outputs clocks in "hand-made" seq's	Clock Pulse output on each loop of a Slice Play. (+5V @ 1 K pullup) unless in SGS "hand-made" sequence play.	N/A