K-DEVICES

COLORIZE YOUR SOUND

TED

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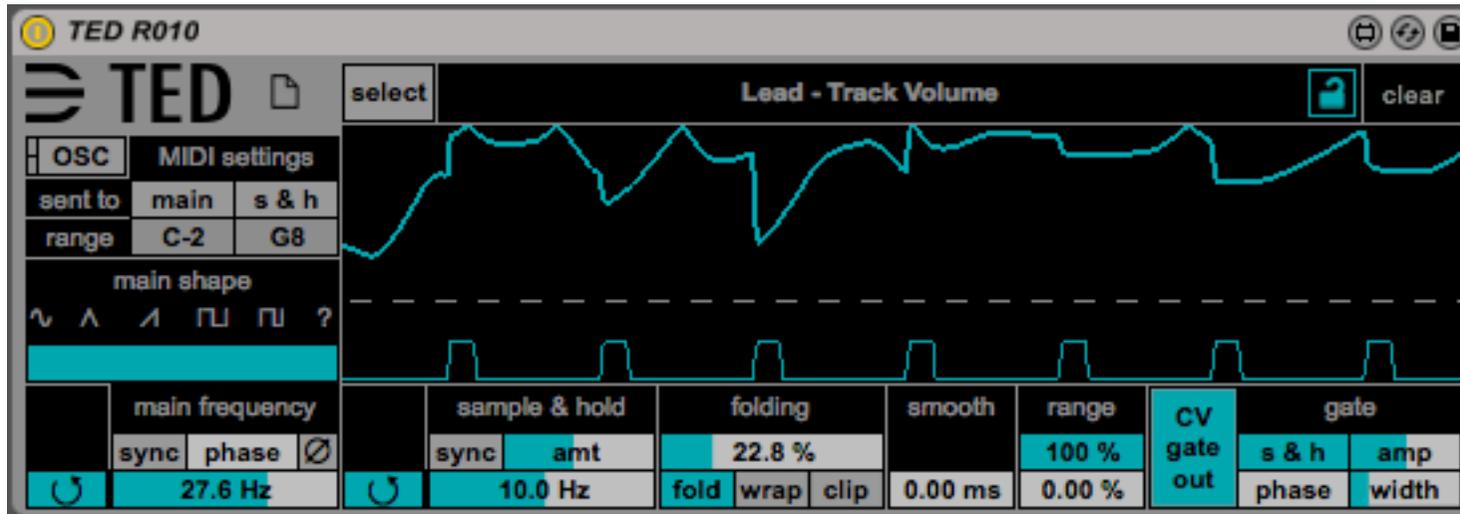www.k-devices.com - support@k-devices.com

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1. THIS IS TED

Thank you for choosing TED!

TED is a Max For Live instrument designed as a multi-purpose function generator: it can be used to control any parameter in Ableton Live and/or output CV/gate signals which may be used in any external compatible device.

This document will guide you through a complete overview of the product. After reading it, you should be able to use it on perfect, so we recommend that you take the time to read this guide in its entirely.

Ableton Live 9 and the Max For Live add-on are required (refer to our website to know which are the Live version supported for every released version): TED is a Max For Live device and works both on Mac OS® X and Windows®.

TED is currently available as single product.

Thanks to the Max For Live total integration, each TED parameter is described in the Live Info View.

We suggest to follow K-Devices via Facebook, Twitter or sign up our Newsletter, in order to stay updated with K-Devices news and TED future updates.

2. INSTALLATION

To install the device double click on the .alp file contained in the downloaded package. Device, presets and Ableton Live Lessons will be automatically installed.

TED device will be installed in the Ableton Live Library: you can find it in the "packs" tab of the Live 9 browser.

3. PACK CONTENTS

In addition to the Max For Live device, TED contains:

• 5 presets.

4. HOW TED WORKS

TED is a function generator: it is composed of a main oscillator, that you can sample and hold with a user-defined amount and an effect section.

The signal produced can then be mapped to any parameter in Ableton Live. Furthermore, if you have a DC coupled audio interface, you can even output that signal as a CV/Gate, and use it to control any compatible device.

4.1. MIDI TRIG FILTER

TED can receive MIDI notes and use them to trig the main oscillator or the sample and hold circuit.

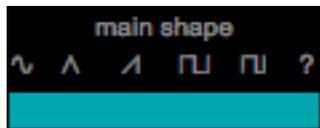In order to trig the main oscillator or the sample and hold circuit, activate one of them in this area, and deactivate the desired loop mode.

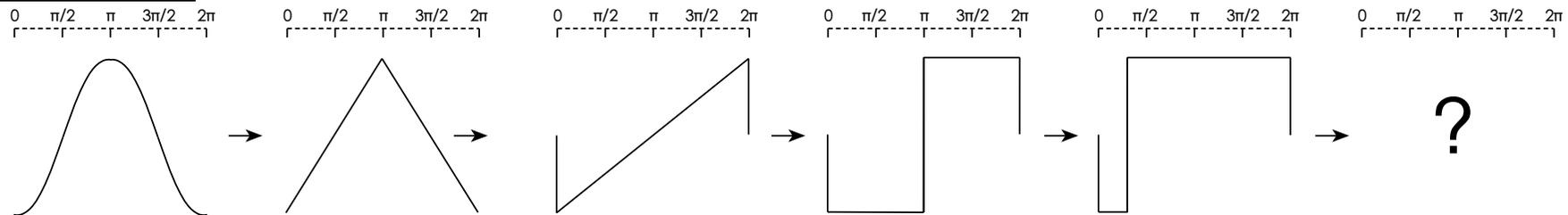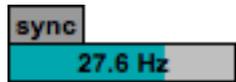With these values you can filter incoming MIDI notes to a specified range.

4.2. MAIN

You can select which waveform should be used in the main oscillator with this slider: please note that you can morph across waveform keeping the phase relation shown below.

When Sync is off, here you can set the oscillator frequency.

When Sync is on, the oscillator frequency is linked to Live's transport: use the resolution slider and the resolution kind switch to set which resolution fits better your needs.

Set the phase of the phase.

Revert the phase of the oscillator.

When loop is on, the oscillator will act as a "normal" oscillator: so at the end of its cycle it will restart from the beginning.

When loop is off the oscillator stands still: it will start only for a defined number of cycles (from 1 to 99) when it gets a trigger. You can trigger it with this button or sending MIDI notes (see MIDI TRIG FILTER paragraph for details).

4.3.SAMPLE & HOLD
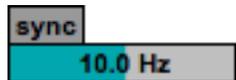
When Sync is off, here you can set the sampling frequency.

When Sync is on, the sampling frequency is linked to Live's transport: use the resolution slider and the resolution kind switch to set which resolution fits better your needs.

Set the sample & hold amount.

When loop is on, the sampling circuit will act as a "normal" oscillator: it samples when the signal switches from 1. to 0.

When loop is off the sampling circuit stands still: it will start only for a defined number of cycles (from 1 to 99) when it gets a trigger. You can trigger it with this button or sending MIDI notes (see MIDI TRIG FILTER paragraph for details).

4.4.EFFECTS

After the sample & hold section you can modify the waveform with a wave folding circuit, then you can smooth it setting up an interpolation time and you can scale it using the range parameters.

4.4.1.WAVE FOLDING

You can select between 3 different behaviors of wave modification:

- fold - as soon as the waveform value crosses the threshold, it outputs the result of the subtraction of the threshold value, minus that exceeding value;
- wrap - as soon as the waveform value crosses the threshold, it outputs only the exceeding value;
- clip - as soon as the waveform value crosses the threshold, it outputs only the threshold value itself.

FOLD   WRAP   CLIP
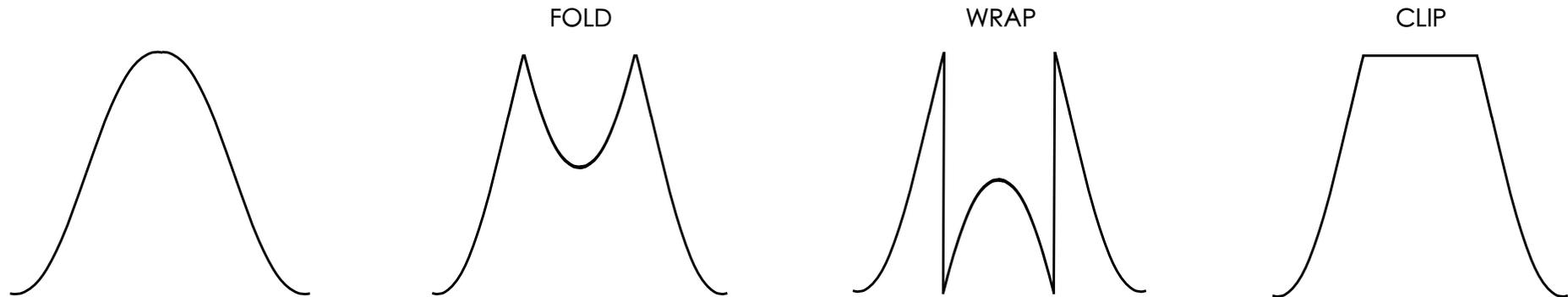
The fold amount let you set the gain amplitude for this effect. The modification starts as soon as a value exceeds the range 0.÷1. When the fold amount reaches 100%, the "folded" area in folding and wrap modes has the same amplitude as the original signal

4.4.2.SMOOTH

You can apply a linear interpolation to smooth the "waveform edges". This parameter is expressed in absolute time, so don't look too much on the waveform display!!!

4.4.3.OUTPUT RANGE
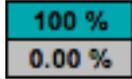
| 100 % | As last step, you can scale the outgoing signal with a minimum ad maximum value. |

4.5.MAP TO ANYTHING

select   **Lead - Track Volume**   🔓 clear

Click on the select button and then click the parameter that you want TED to control.

The clear button unlinks TED from that parameter. You can avoid accidental unlinking activating the padlock icon.

4.6.CV/GATE

TED's signal can also be sent as audio to the output and used as a Control Voltage with any compatible external device. In addition to that signal TED also creates a GATE signal, which may come from the main oscillator or from the sample and hold circuit.

PLEASE NOTE

In order to use this feature a DC coupled audio interface or a DC coupled Digital-to-Analog audio converter is required.
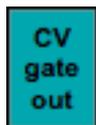
CV gate out   Activate the CV/GATE mode.

s & h	Select the source for the gate.
amp	Set the gate amplitude.
phase	Set the gate phase.
width	Set the gate "pulse width".
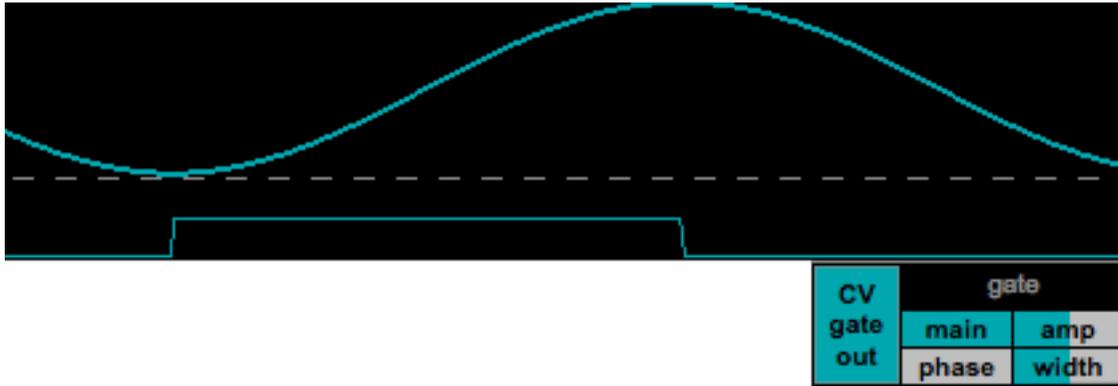
Here is an example of gate signal from the main oscillator section, which runs at 1.5Hz here.
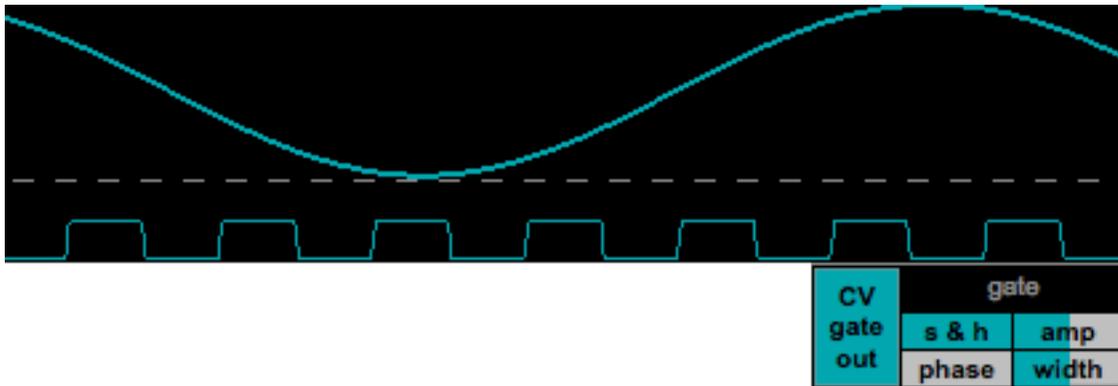
Here is an example of gate signal from the sample and hold oscillator section, which runs at 10Hz.

5. SIGNAL FLOW

```
┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐        ◇
│   MAIN   │──▶│  SAMPLE  │──▶│ FOLDING  │──▶│  SMOOTH  │──▶│  SCALE   │──────▶ MAP
│OSCILLATOR│   │    &     │   │          │   │          │   │          │        ◇
└──────────┘   │   HOLD   │   └──────────┘   └──────────┘   └──────────┘
               └──────────┘

                                                           ┌──────────┐
                                                           │  OUTPUT  │
                                          ┌──────────┐     │          │
                                          │   GATE   │────▶│    CV    │
                                          │ SELECTOR │     │          │
                                          └──────────┘     │   GATE   │
                                                           └──────────┘
```
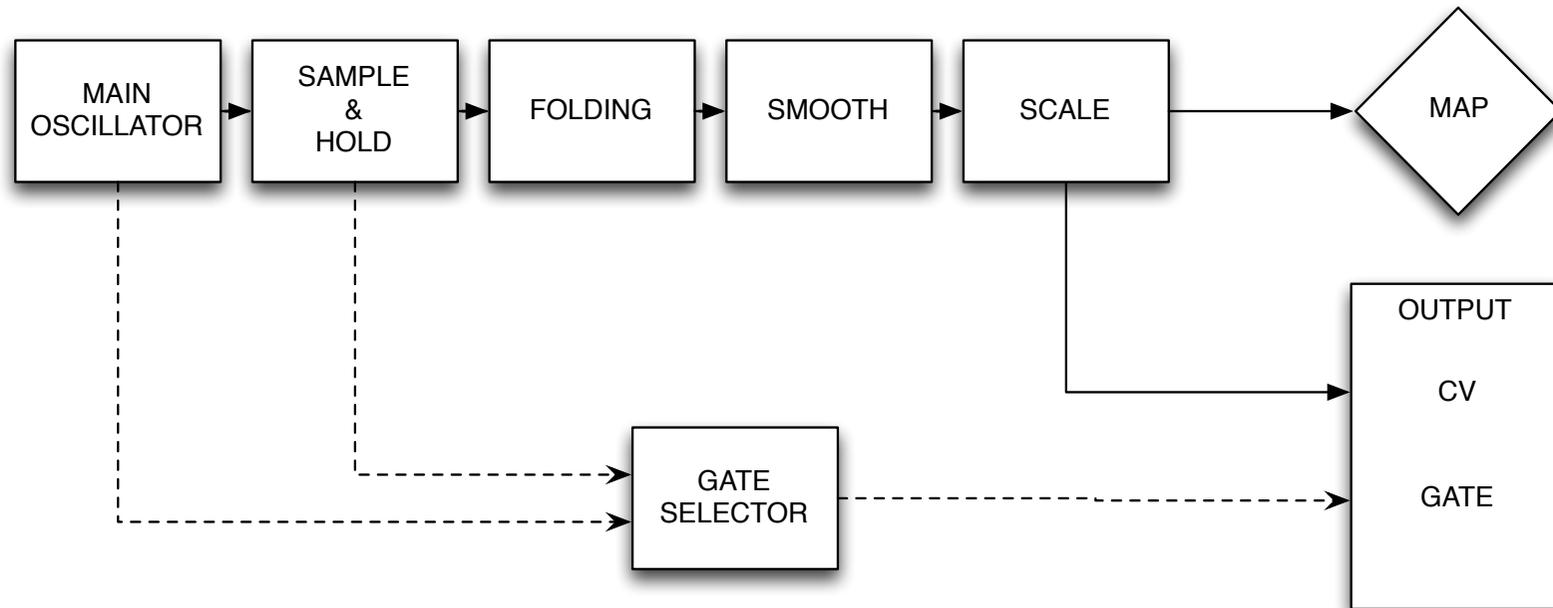
6. OPEN SOUND CONTROL IMPLEMENTATION

OSC address (add /herse/ as prefix)	parameter name	data type	range min	max	interp. exp.	out	in	description
bars	Buffer Length	int	0	2	-	O	O	Sets the buffer length in bars, depending on the time signature.
grid_def	Grid Default	anything	-	-	-	X	O	Sets the grid slices to the default position.
grid_drunk	Grid Drunkwalk	int	0	1	-	O	O	Reproduces grid slices randomly.
grid_freeze	Grid Freeze	int	0	1	-	O	O	Freezes the grid on the current slice.
grid_rand	Grid Random	anything	-	-	-	X	O	Randomizes the grid slices position.
grid_up	Grid Scroll Down	anything	-	-	-	X	O	Scrolls down the slices in the grid.
grid_down	Grid Scroll Up	anything	-	-	-	X	O	Scrolls up the slices in the grid.
hide_seq	Hide Sequencers	int	0	1	-	O	O	Hides the sequencers area reducing the size of the device.
lock_buff	Lock Buffer	int	0	1	-	O	O	Prevents the buffer to be overwritten with incoming audio.
steps	Steps Number	int	2	16	-	O	O	Sets the steps number for all the sequencers and the column and row number for the slicer grid.
swing	Swing	float	0.	87.5	1	O	O	Sets the swing amount for the main time resolution. This adds length to the first notes, shorting the second. The first note can reach these values: 50% equals the value of a dotted note, 66.6% equals the value of two triplet notes, 75% equals the value of a double dotted note, 87.5% equals the value of a triple dotted note.
time_res_kind	Time Resolution Kind	int	0	2	-	O	O	Sets the time resolution kind for both main and variation time resolutions. Normal, Triplets, Dotted.
time_res_main	Time Resolution Main	int	0	3	-	O	O	Sets the main time resolution Length. 1/4 - 1/8 - 1/16 - 1/32
time_res_var	Time Resolution Variation	int	0	3	-	O	O	Sets the variation time resolution Length. 1/4 - 1/8 - 1/16 - 1/32
time_var	Time Variation	float	0.	1.	1	O	O	Sets the probability to use the main or the variation time resolution. As more as the value is increased, as chances to use the variation time resolution increase.
xfade	X-Fade	int	0	20	-	O	O	Creates an interpolation between two consecutive slices (in milliseconds).
slicer	Grid Slicer	int list x16	1	16	-	O	O	Choose which slice is going to be played for each position.

OSC address (add /herse/ as prefix)	parameter name	data type	range		interp. exp.	out	in	description
			min	max				
midi/midi_to_main	MIDI to main					O	O	Sends filtered MIDI values and use them as trigger for the main oscillator (if it is in not in loop mode).
midi/midi_to_sah	MIDI to s & h	int	0	1		O	O	Sends filtered MIDI values and use them as trigger for the sample & hold circuit (if it is in not in loop mode).
midi/higher	MIDI Higher	int	0	127		O	O	Sets the maximum MIDI note which may be used as a trigger.
midi/lower	MIDI Lower	int	0	127		O	O	Sets the minimum MIDI note which may be used as a trigger.
main/wave	Wave	float	0.	5.	1.	O	O	Sets the main oscillator waveform.
main/antiphase	Antiphase	int	0	1		O	O	Revert the phase of this oscillator.
main/phase	Phase	float	0.	1.	1.	O	O	Sets the phase of the main oscillator.
main/sync	Sync	int	0	1		O	O	Sync the main oscillator to Live's transport.
main/loop	Loop	int	0	1		O	O	Activates the loop mode for the main oscillator.
main/trig	Trig	int	0	1		X	O	Trig the main oscillator (if it is not in loop mode).
main/trig_cycles	Trig Cycles	int	1	100		O	O	Sets the number of cycles of the main oscillator (if it is not in loop mode).
main/freq	Frequency	float	0.	100.	3.4	O	O	Sets the frequency of the oscillator.
main/res	Resolution	int	0	3		O	O	Sets the resolution of the oscillator in sync mode.
main/res_kind	Resolution Kind	int	0	2		O	O	Sets the resolution kind of the oscillator in sync mode: normal, triplets or dotted.
sah/freq	S&H Frequency	float	0.	100.	3.4	O	O	Sets the frequency for sample and hold circuit.
sah/res	S&H Resolution	int	0	3		O	O	Sets the resolution for sample and hold circuit in sync mode.
sah/res_kind	S&H Resolution Kind	int	0	2		O	O	Sets the resolution kind for sample and hold circuit in sync mode.
sah/loop	S&H Loop	int	0	1		O	O	Activates the loop mode for the sample and hold circuit.
sah/sync	S&H Sync	int	0	1		O	O	Sync the sample and hold circuit to Live's transport.
sah/trig	S&H Trig	int	0	1		X	O	Trig the sample and hold circuit (if it is not in loop mode).
sah/trig_cycles	S&H Trig Cycles	int	1	100		O	O	Sets the number of cycles of the sample and hold circuit (if it is not in loop mode).
sah/amount	S&H Amount	float	0.	100.	1.	O	O	Sets the amount of signal which should be sampled and held.

OSC address (add /herse/ as prefix)	parameter name	data type	range		interp. exp.	out	in	description
			min	max				
folding/amount	Folding Amount	float	0.	100.	1.	O	O	Set the amount of folding applied to te wave, according to the choosen mode.
folding/mode	Folding Mode	int	0	2		O	O	Set the folding mode: fold, wrap or clip.
smooth/time	Smooth Time	float	0.	100.	3.4	O	O	Smooth signal accross a defined time.
range/amount	Range Min and Range Max	float list (2x)	0.	100.	1.	O	O	Set the minimum and maximum range modulating amplitude of the signal (applied also to CV signal if used).
cv_gate/out	Output	int	0	1		O	O	Activate the CV/Gate signal output.
cv_gate/gate_width	Gate Width	float	0.02	0.98	1.	O	O	Sets the pulse width of the outgoing gate signal.
cv_gate/gate_source	Gate Source	int	0	1		O	O	Sets the source for the outgoing gate signal.
cv_gate/gate_amp	Gate Amplitude	float	0.	100.	1.	O	O	Sets the amplitude of the outgoing gate signal.
cv_gate/gate_phase	Gate Phase	float	0.	1.		O	O	Sets the phase of the outgoing gate signal.

7. PUSH IMPLEMENTATION

	1	2	3	4	5	6	7	8
1st page	Freq	Sync	Res	Res Kind	Antiphase	Phase		Wave
	9	10	11	12	13	14	15	16
2nd page	Loop	Trig	Trig Cycles	Fold Amt	Fold Mode	Smooth Time	Range Min	Range Max
	17	18	19	20	21	22	23	24
3rd page	S&H Amt	S&H Freq	S&H Sync	S&H Res	S&H Res Kind	S&H Loop	S&H Trig	S&H Tr Cycles
	25	26	27	28	29	30	31	32
4th page	Gate Amp	Gate Phase	Gate Source	Gate Width			Output	
	33	34	35	36	37	38	39	40
5th page	MIDI Low	MIDI High	MIDI main	MIDI s&h			Target Lock	