SIREN

User Manual

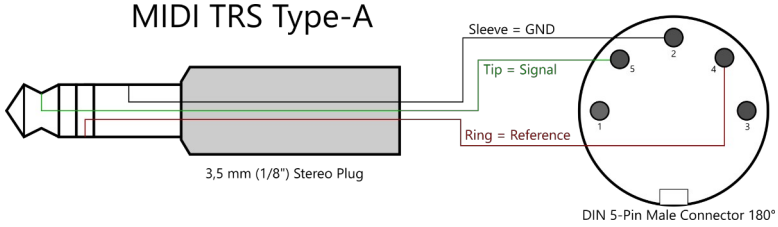
The ***Oscillator Devices SIREN*** is a Stereo MIDI Volume Controller. Its two fully analog channels can be independently set from -96dB (Mute) up to a whooping +30dB boost. The channels can be split before, mixed after the volume control or used as a parallel FX loop. The ***SIREN*** has high quality, low noise buffers, outstanding cross talk behaviour and is specifically designed not to color your tone.

The ***SIREN*** has two internal LFOs to drive the volume control. Both LFOs operate completely independent. Different waveforms (Sine, Triangle, Rectangle and Ramp in both directions) can either be free running from 100ms to 1.2s, or can be synced to MIDI clock.

On top of that the ***SIREN*** supports *Fade* and *Swell* functions. While *Fade* slowly fades to another volume, the *Swell* function snaps back to the original volume when done, ready to be triggered again.

Connections

- **Input A/B:** Two 1/4“ mono jacks. For use with a TRS stereo jack use only channel A and leave channel B unconnected (TRS support only from version 2.0). Input impedance 1MΩ.
- **Output A/B:** Two 1/4“ mono jacks. For use with a TRS stereo jack use channel A and leave channel B unconnected (TRS support only from version 2.0). Output impedance 500Ω.
- **Power:** 9VDC only, Center Negative, Boss Style power supply. Min. 150mA.
- **MIDI In:** 3.5mm (1/8“) MIDI Input according to MIDI Standard ***MIDI TRS Type-A.***
- **MIDI Thru:** 3.5mm (1/8“) , latency free MIDI Thru according to MIDI Standard ***MIDI TRS Type-A***



Before powering up the SIREN make sure your power amp is switched off or muted.

Controls

All of the following controls are also available as MIDI commands.

- **CH A/B:** The two knobs labeled *CH A* and *CH B* are setting the volume of channels A and B. MIDI commands override the knob settings (except the MIDI command for relative volume). When turned, the knobs override MIDI commands.
- **LEDs**: The LEDs light up corresponding to the volume of the respective channel. On mute they faintly blink green. When the volume is raised the blinking stops and they become brighter. Starting at unity gain a red color is mixed in and gets brighter until full volume is reached.
- **PHASE:** The *PHASE* button flips the phase of Channel A. It lights up, when the phase is flipped. It also is used for setting the MIDI channel (see MIDI Channel), setting Split, Mix an Parallel FX (see Modes) and setting the gain range (see Setting the Gain Range).

Modes

Normal (Stereo Volume Control)

In normal mode, both channels act independent from each other.

Split (Mono In/Stereo Out)

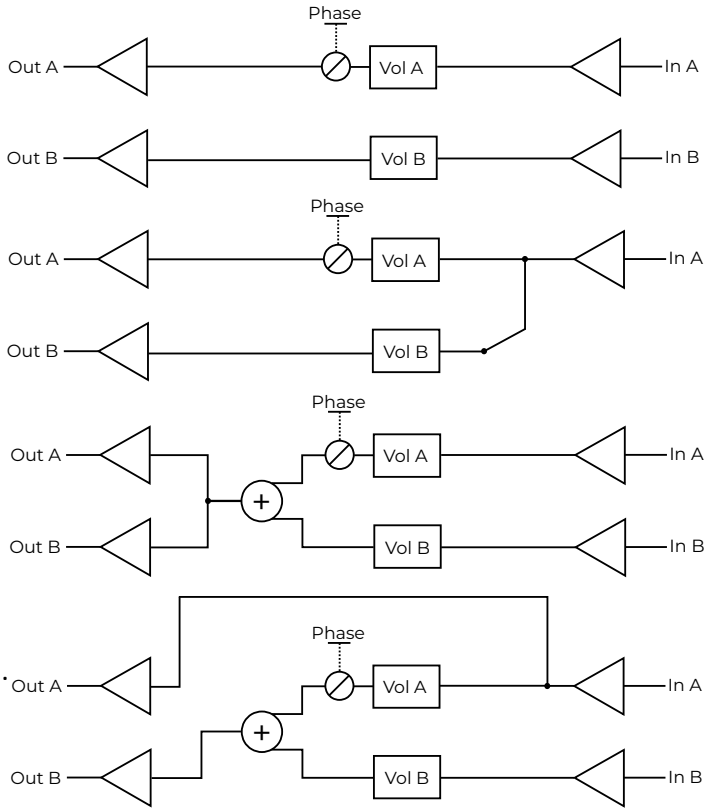
In Split mode channel A is split to both outputs before the volume control.

Mix (Stereo In/Mono Out)

The Mix function blends Channel A with Channel B AFTER the volume control. The blended signal is provided on Out A and Out B.

Parallel (Parallel FX Loop)

Only from version 2.0. The input of channel A is routed unprocessed to output A where it can feed another FX pedal. The output of this pedal is then connected to input B where it is blended with the dry input of channel A. Volume of channel A controls the dry volume and volume B controls the wet volume.



To select the Split, Mix and Parallel FX Loop settings press and hold the ***PHASE*** button until it starts flashing. By repeatedly pressing the ***PHASE*** button, you can scroll through any combination of Split, Mix and Parallel shown by the orange lights of the LEDs. Press and hold the ***PHASE*** button to save the selection.

Setting the Gain Range

The ***SIREN*** has three gain ranges. -96dB...18dB (default)., -96dB...24dB and -96dB to 30dB. To select another gain range double tap the ***PHASE*** button. It starts getting slowly brighter and darker and the LEDs show the gain range by their color. By repeatedly pressing the ***PHASE*** button, you can scroll through the gain ranges. Press and hold the ***PHASE*** button to save the selection.

-96dB...18dB	Green
-96dB...24dB	Orange
-96dB...30dB	Red

When selecting higher gain ranges, be aware that the gain steps are getting quite big. Gain changes can get audible, especially when sweeping above 18dB.

Controlling Volume

The volume of both channels can either be set individually, or for both channels at the same time. The volume can be set as an absolute value (ideal for gain staging), or relative to the knob position (best for adjusting the overall volume without changing MIDI programming).

CC				Function
Channel A	Channel B	Channel A+B	#	
20	40	60	0-127	Volume of respective channel. 0 = Mute, 64 = Unitiy Gain, 127 = Max Gain Overrides the setting of the knob.
29	49	69	0-127	Volume of respective channel relative to the setting of the knob, i.e. CC 69 127 results in the volume according to the setting of the knobs. For example: Knob at 12 o clock, CC 69 127 results in unity gain. (only version 1.0.1)

LFO

The volume control can be driven by two LFOs (Low Frequency Oscillators), either free running from 100ms to 1.27s time, or synced to MIDI clock with various time divisions. LFO functions are only accessible via MIDI. The LFOs can run in different waveforms:

- **Sine:** A normal, smooth sine wave
- **Triangle:** Almost like a sine wave, but less musical, more static
- **Rectangular**: Perfect for a slicer or stutter effect
- **Ramp:** Forward or backward, for repeated swells, for example.

Every channel has its own set of LFO commands. To fully define a LFO, two messages are necessary. The first one to determine waveform and depth, the second one to determine the speed of the waveform.

The following commands are for defining waveform and depth. They all use the current volume as reference. That means, that a sine wave LFO with depth = 127 swings from the current volume all the way down to mute. If you change the volume when the LFO is running, the swing is shifted, too.

CC				Function
Channel A	Channel B	Channel A+B	#	
21	41	61	0-127	Sine Wave LFO (0 = 0ff, 127 = Full Depth)
22	42	62	0-127	Triangular Wave LFO (0 = 0ff, 127 = Full Depth)
23	43	63	0-127	Rectangular Wave LFO (0 = 0ff, 127 = Full Depth)
24	44	64	0-127	Sawtooth LFO, Ramp Forward (0 = 0ff, 127 = Full Depth)
25	45	65	0-127	Sawtooth LFO, Ramp Backward (0 = 0ff, 127 = Full Depth)

The following commands are for setting the speed. Note, that speed of 1/4th note MIDI Clock is default. If you only want to use these (which is probably the most common) you won't need the speed command, at all.

CC				Function
Channel A	Channel B	Channel A+B	#	
30	50	70	0	LFO off
			1	Synced to MIDI Clock 1/4th note (Default)
			2	Synced to MIDI Clock 1/8th note
			3	Synced to MIDI Clock triplets
			4	Synced to MIDI Clock 1/16th note
			5	Synced to MIDI Clock dotted 1/8th note
			6	Synced to MIDI Clock half note
			7	Synced to MIDI Clock whole note
			8	Synced to MIDI Clock 1/32th note (only version 1.0.1)
			10-127	Free Running from 100ms (=10) to 1.27s (=127)

If you're running the LFO in stereo and want to change the relation between them, there is the delay command. With that the LFO of one channel can be delayed to create mind bending stereo effects. The delay is in 1/24th of one duration. For example, if you want to shift it so, that one sine wave goes high, exactly when the other goes low, use 12.

CC				Function
Channel A	Channel B	Channel A+B	#	
31	51	71	0-24	Delay the LFO by 1/24th of a full duration

Finally, there is a single command to control the depth without changing the waveform.

CC				Function
Channel A	Channel B	Channel A+B	#	
32	52	72	0-127	Depth of currently running LFO (0=off, 127 = Full)

Fade and Swell

The *Fade* and *Swell* functions are basically a one shot LFO with a ramp waveform. Use *Fade* to slowly fade in, fade out, or fade to a different volume. *Fade* stays at the target volume when done. That's the difference to *Swell*. *Swell* snaps back to the initial volume, when the ramp is finished, ready to be triggered again. That way you can create slow gear swell effects.

CC				Function
Channel A	Channel B	Channel A+B	#	
26	46	66	0-127	One Shot Swell. Starts at current volume ends at the CC value of this command
27	47	67	0-127	Fade. Fade to CC value of this command (e.g. 0 for a fade out, or 127 to fade to full volume)

The time it takes for the fade and swell to complete is set with the same command like the LFO:

CC				Function
Channel A	Channel B	Channel A+B	#	
30	50	70	1	Synced to MIDI Clock 1/4th note (Default). The Fade/Swell takes 4 quarter notes to complete.
			2	Synced to MIDI Clock 1/8th note . The Fade/Swell takes 4 eight notes to complete.
			3	Synced to MIDI Clock triplets. The Fade/Swell takes 4 triplets to complete.
			4	Synced to MIDI Clock 1/16th note. . The Fade/Swell takes 4 sixteenth notes to complete.
			5	Synced to MIDI Clock dotted 1/8th note. The Fade/Swell takes 4 dotted eight notes to complete.
			6	Synced to MIDI Clock half note. The Fade/Swell takes 4 half notes notes to complete.
			7	Synced to MIDI Clock whole note. The Fade/Swell takes 4 whole notes to complete.
			10-127	The fade/swell takes from 100ms (=10) to 1.27s (=127) to complete.

MIDI Command Crossfade

When using the ***SIREN*** in mix mode, for example, this command can be used to crossfade between the channels.

CC	#	Function
73	0-127	127 = Channel A at knob setting and Channel B mute, 0 = Channel A mute and Channel B at knob setting (only version 2.1.1 and higher)

MIDI Command Mode (Split/Mix/Parallel FX)

With the following command, the Mode can be controlled. This setting is only temporary. To set the mode permanently, use the button (see chapter Modes)

CC	#	Function
102	0	Normal
	1	Mix Mode
	2	Split Mode
	3	Parallel FX Mode

CC	#	Function
103	0-1	0 = Phase of channel A normal, 1 = Phase of channel A inverted

MIDI Command Phase

This setting is only temporary. To set the phase permanently, use the button (see chapter Controls)

CC	#	Function
103	0-1	0 = Phase of channel A normal, 1 = Phase of channel A inverted

MIDI Command Gain Range

This setting is only temporary. To set the gain range permanently, use the button (see chapter Setting the Gain Range)

CC	#	Function
114	0	-96dB...18dB (Default)
	1	-96dB...24dB
	2	-96dB...30dB

MIDI Channel

The ***SIREN*** ships in omni mode (i.e. it responds to any channel).
To change the MIDI channel, proceed as follows:

1. Disconnect the device from the power supply
2. Press and hold the **PHASE-Button** and restore the power while the button is pressed.
3. After the boot process is complete, the PHASE LED starts to flash. Press the PHASE-button according to the number of the desired channel (e.g. twice for channel 2). The ***SIREN*** acknowledges this by emitting short flashing pulses corresponding to the number of the channel.
4. Once the desired channel is set, press the PHASE-button and hold it down until the LED stops flashing.
5. Disconnect the supply voltage. The next time the ***SIREN*** is started, it reacts to the selected MIDI channel.

To put the ***SIREN*** in omni mode skip step 3.

Presets

To save on MIDI commands or to work with MIDI controllers that only support PC commands, the ***SIREN*** supports 48 user presets followed by 16 factory presets.

To save a preset proceed as follows:

1. Set everything how you want it to be.
2. Press and hold the PHASE-Button. The button starts flashing.
3. Send the PC command that you want to be associated with the current settings (between PC 00 and PC 47).
4. The flashing stops and the preset is saved.

To recall presets for a singel channel only, use the following CC commands

CC	#	Function
117	0-47	Recall Preset only for channel A
118	0-47	Recall Preset only for channel B

Factory Presets

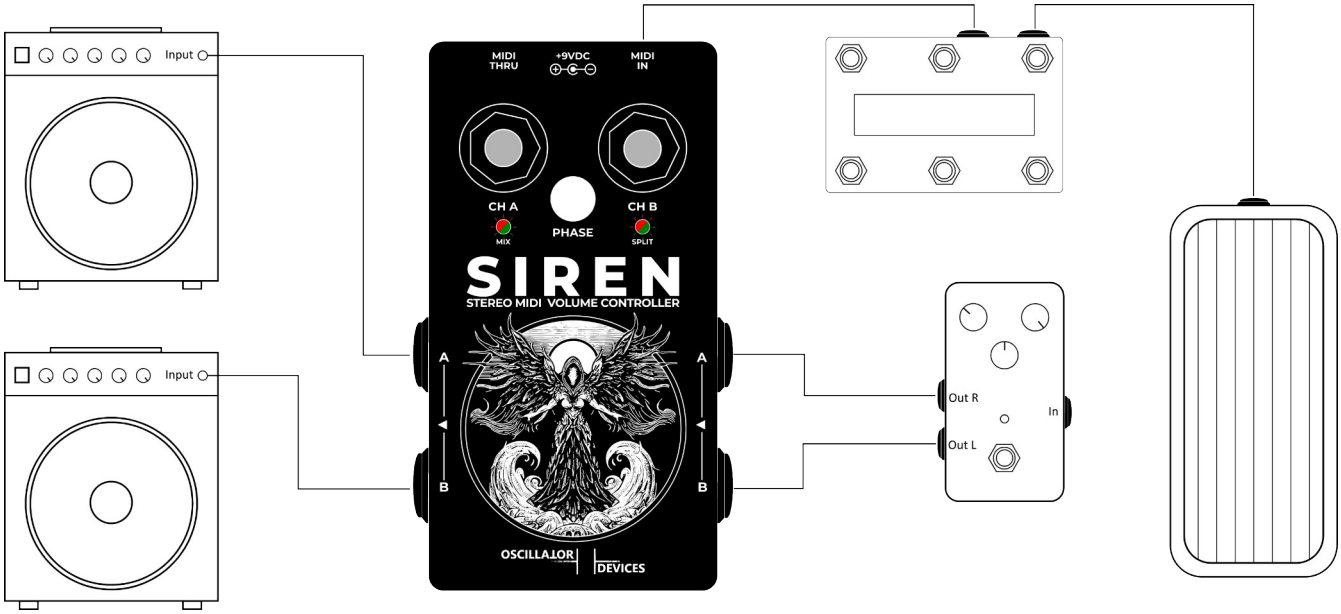
On top of the 48 user presets (PC 00 to PC 47), the ***SIREN*** comes with 16 factory presets (PC 48 to PC 63). These presets should give you a good starting point for experimentation. These are the factory presets along with the MIDI commands that are used to achieve them:

PC	Description	MIDI Commands
48	Both channels unity gain. No LFO	CC 60 64
49	Slight sine wave LFO on both channels. Free Running 400ms	CC 61 24 CC 70 40
50	Slight sine wave LFO on both channels, slightly out of phase, free running 400ms	CC 61 24 CC 70 40 CC 31 06
51	Sine wave LFO on both channels, synced to MIDI clock 1/4th notes	CC 61 40 CC 70 01
52	Triangle wave LFO on both channels, synced to MIDI clock 1/8th notes	CC 62 40 CC 70 02
53	Triangle wave LFO on both channels, synced to MIDI clock dotted 1/8th notes on Channel A, 1/4th on Channel B	CC 62 64 CC 30 05 CC 40 02
54	Rectangle wave LFO full depth on both channels, synced to MIDI clock 1/16th	CC 63 127 CC 70 04
55	Rectangle wave LFO full depth on both channels, half wave out of phase, synced to MIDI clock 1/8th	CC 63 127 CC 70 02 CC 31 12
56	Slicer, very fast, full rectangular LFO 100ms	CC 63 127 CC 70 10
57	Ramp forward, full depth, synced to MIDI clock 1/4th notes.	CC 64 127 CC 70 01
58	Ramp backward, full depth, synced to MIDI clock 1/4th notes.	CC 65 127 CC 70 01
59	Ramp forward on Channel A, Ramp backward on Channel B, synced to MIDI clock 1/4th	CC 24 127 CC 45 127 CC 70 01
60	Ramp forward on Channel A synced to MIDI clock 1/4th, Ramp backward on Channel B, synced to MIDI clock triplets	CC 24 127 CC 45 127 CC 30 01 CC 50 03
61	One Shot Swell starting at mute ramping to unity gain in 960ms	CC 60 00 (only for the first time) CC 66 64 CC 70 96
62	Fade out to mute, both channels in 1.27s	CC 67 00 CC 70 127
63	Fade in to unity gain, both channels in 1.27s	CC 67 64 CC 70 127

Applications

Stereo Volume Control

This setup controls the volume of a stereo signal chain. Use an expression pedal, connected to your MIDI controller, as volume pedal, or simply set up patches for song sections with different volumes (lead vs. rhythm). For this setup choose Mix Off and Split Off.



Mono In/Stereo Out

Split the signal of Channel A to both outputs BEFORE the volume control. The stereo path after the ***SIREN*** can be set to different volumes, for example to push two different drive pedals or two amps in a stereo amplifier setup. For this choose Split On and Mix Off.

Stereo In/Mono Out

Blend the channels AFTER the volume control. This can either be, to use a stereo setup with a mono amp for small gigs, or to blend two signals, for example a clean blend. When blending two signals, phase issues can occur, when one signal path inverts the signal. For that case the ***SIREN*** can flip the phase of channel A, either with the Phase-Button or MIDI command. For this choose Split Off and Mix On. Set the Phase button if your signal sounds thin.

Parallel FX Loop

The most recent version of the ***SIREN*** has a new mode. With that mode the ***SIREN*** is able to form a Parallel FX Loop. The input of channel A is routed unprocessed to output A where it can feed another FX pedal. The output of this pedal is then connected to input B where it is blended with the dry input of channel A. Volume of channel A controls the dry volume and volume B controls the wet volume. For this use Split On and Mix On.