MSM

Thank you

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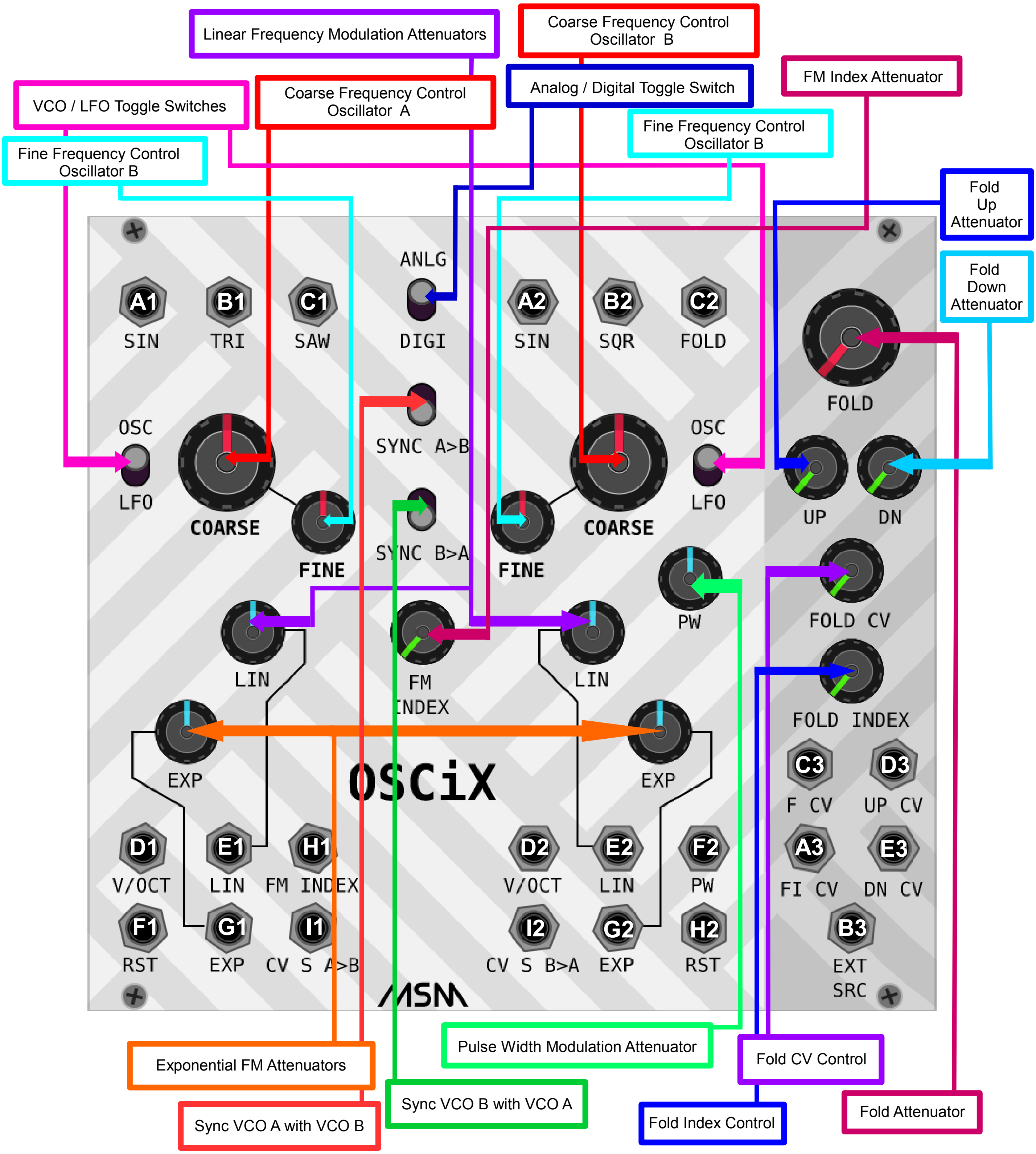
https://phal-anx.github.io/

Written, edited and illustrated by Struggl Michael

OSCiX



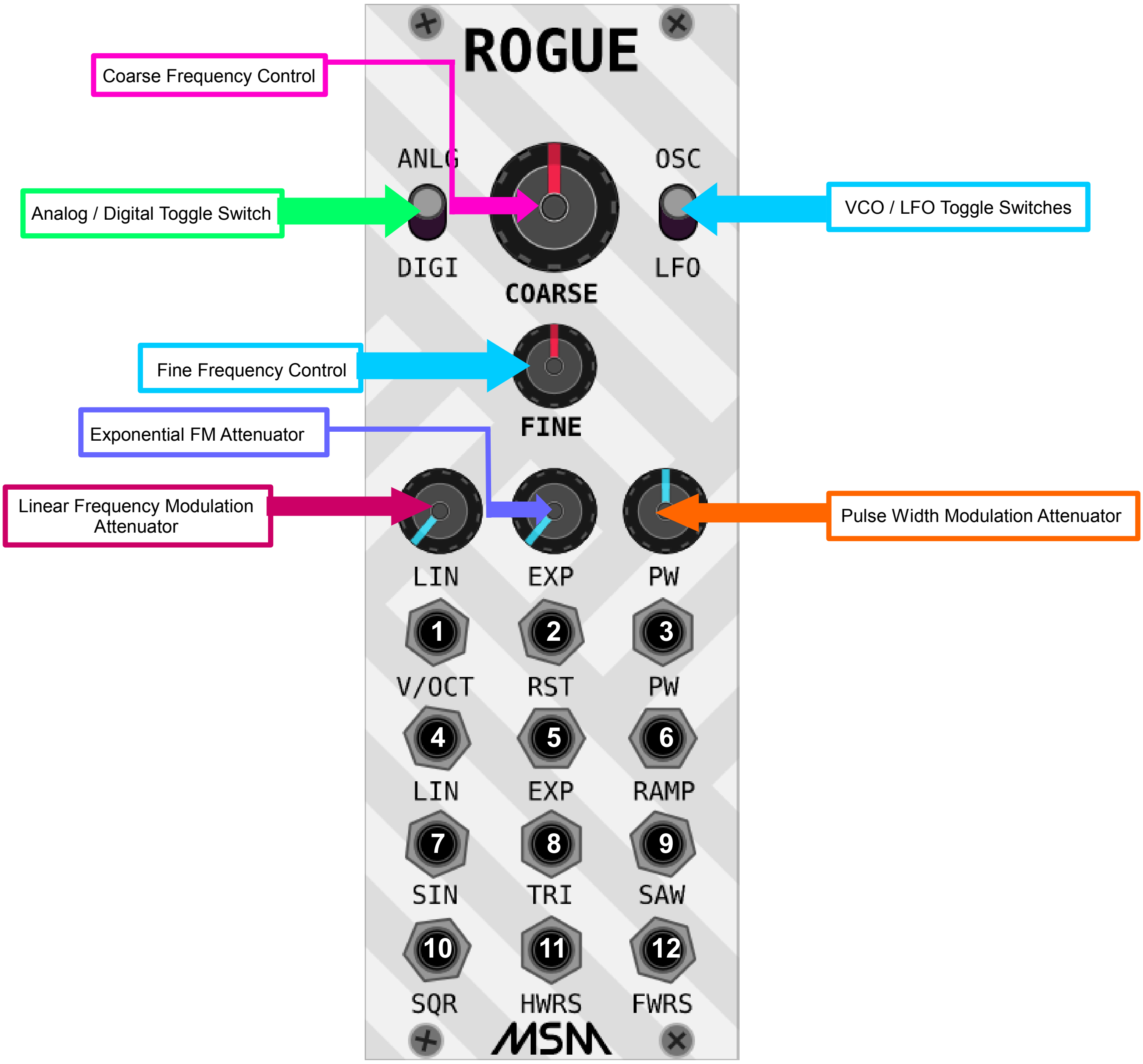
A1: Sine Output
B1: Triangle Output
C1: Sawtooth Output
D1: 1 Volt/Octave Input
E1: Ext. Linear FM Input
F1: Reset/Sync Input
G1: Ext. Exponential FM Input
H1: FM Index Control Voltage Input
I1: Sync Control Voltage Input

A2: Sine Output
B2: Square Wave Output
C2: Fold Output
D2: 1 Volt/Octave Input
E2: Ext. Linear FM Input
F2: Pulse Width Modulation Input
G2: Ext. Exponential FM Input
H2: Reset/Sync Input
I2: Sync Control Voltage Input

A3: Control Voltage Input Fold Index
B3: External Source Input
C3: Control Voltage Input Fold Attenuator
D3: Control Voltage Input Fold Up
E3: Control Voltage Input Fold Down

Rogue

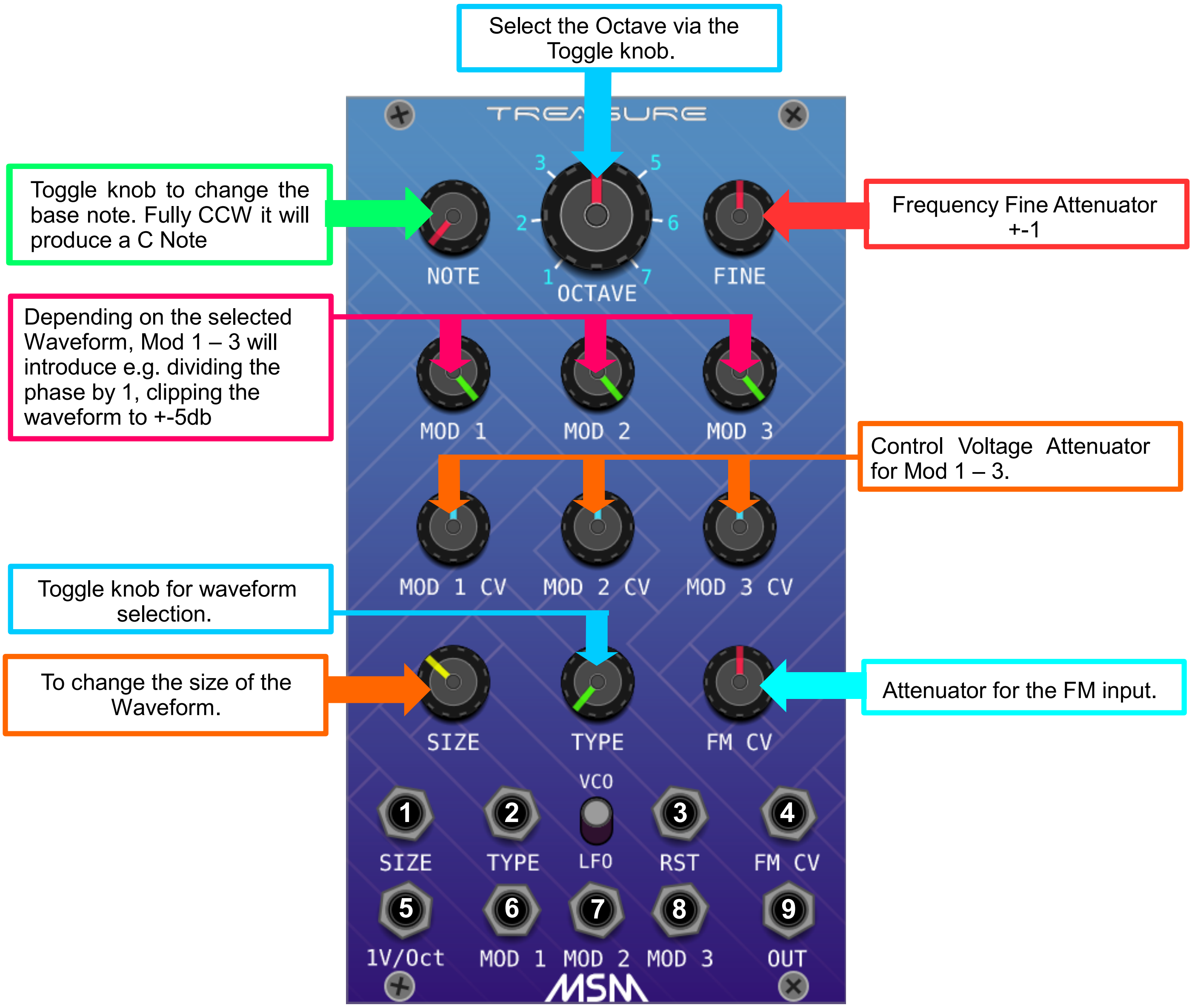
Rogue is the little brother of the OSCiX.
While it uses the same oscillator it provides additional waveforms
(Sine, Triangle, Sawtooth, Ramp, Square Wave, Half Wave Rectified Sine, Full Wave Rectified Sine).
Like OSCiX, Rogue also can be used as an LFO.



1: 1V/Octave Input
2: Reset /Sync Input
3: Pulse Width Modulation Input
4: Linear FM CV Input
5: Exponential FM CV Input
6: Ramp Waveform Output
7: Sine Waveform Output
8: Triangle Waveform Output
9: Sawtooth Waveform Output
10: Square Waveform Output
11: Half Wave Rectified Sine Waveform Output
12: Full Wave Rectified Sine Waveform Output

Treasure VCO

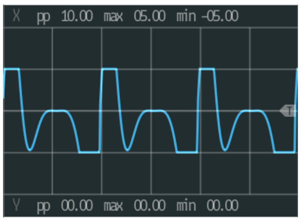
Treasure VCO is a quite experimental sound source.
It got 3 Mod knobs which introduces internal modulation algorithms and let you modulate the waveform manually or through control voltage signals.
Each Mod has attenuators to control the depth of the cv inputs..



1: Control Voltage Input Waveform Size
2: Control Voltage Input Waveform Type
3: Control Voltage Input Reset/Sync
4: Control Voltage Input FM
5: 1V/Octave Input
6: Control Voltage Input Mod 1
7: Control Voltage Input Mod 2
8: Control Voltage Input Mod 3
9: Main Audio Output

Treasure VCO

Available Waveforms



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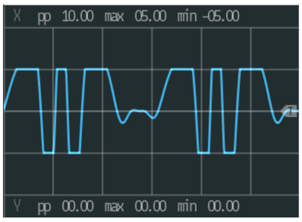

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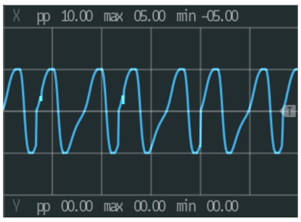

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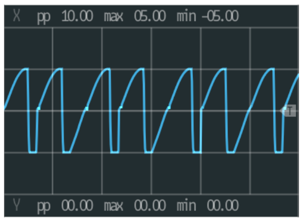

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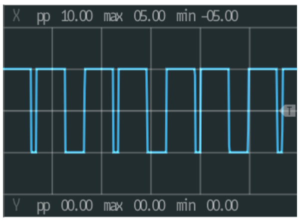

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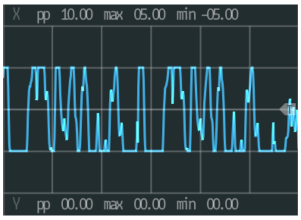

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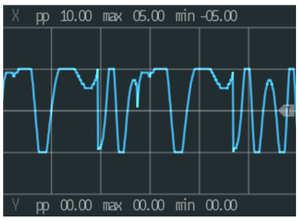

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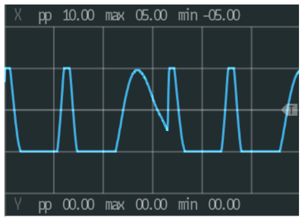

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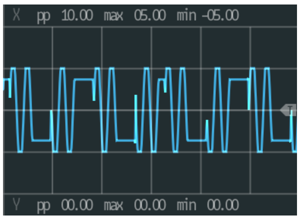

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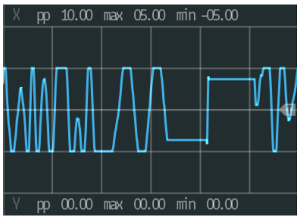

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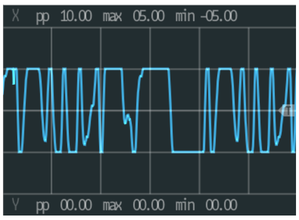

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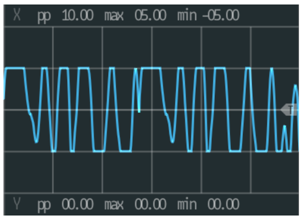

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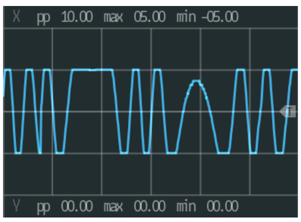

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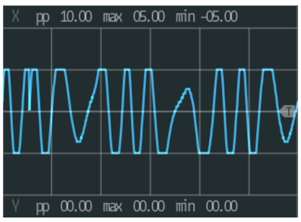
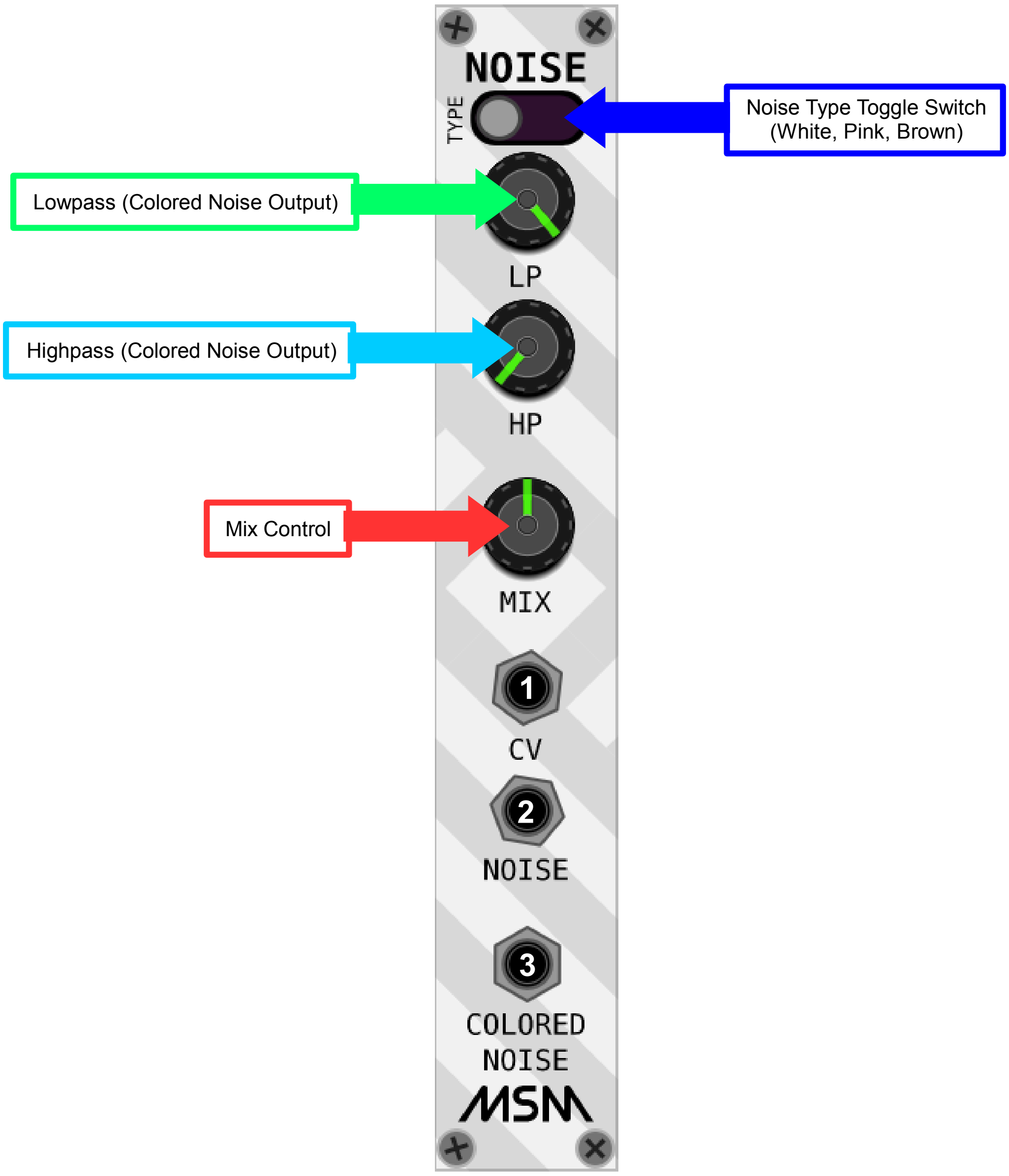


14

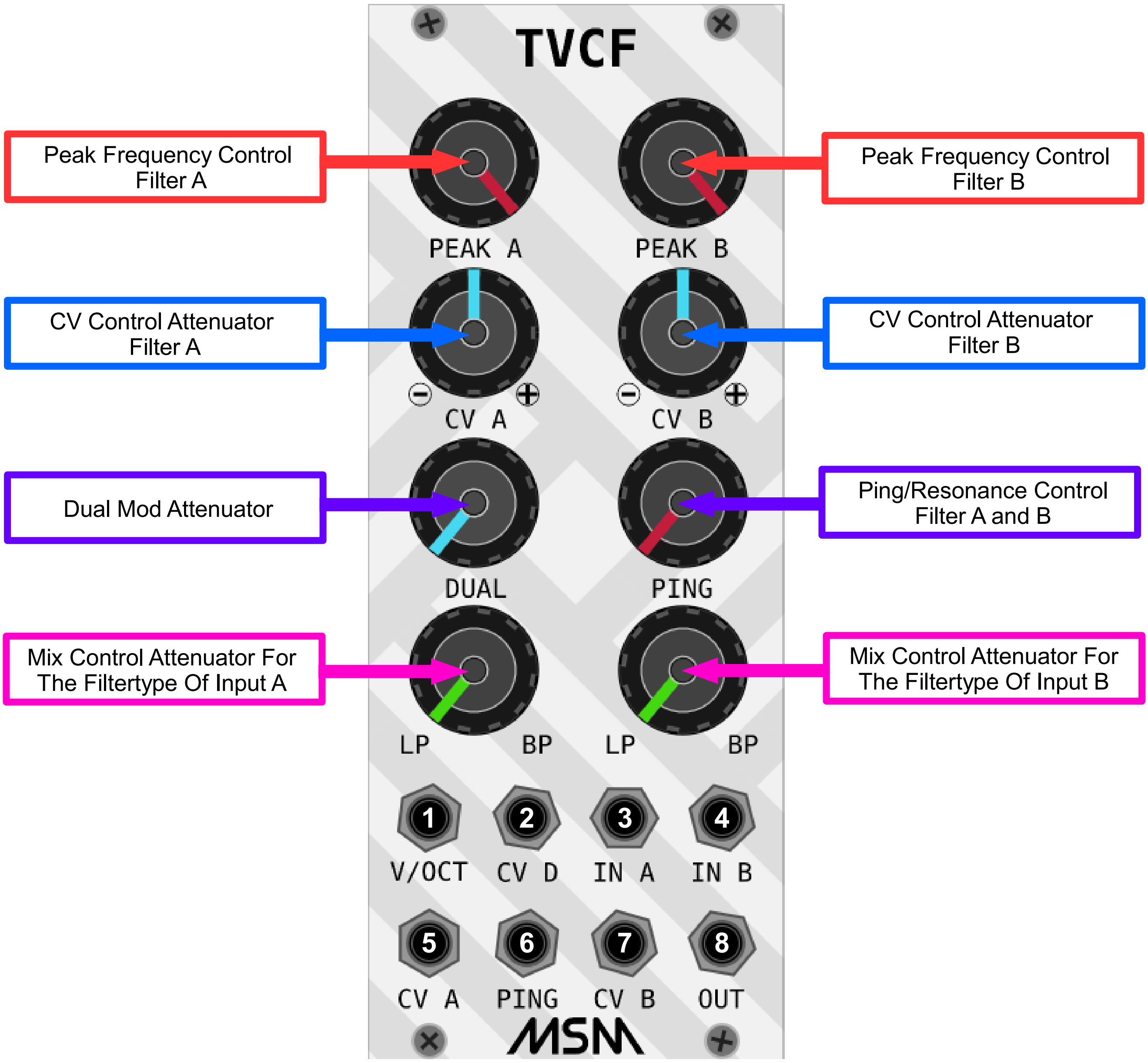
Noise



1: Control Voltage Input
2: Noise (White, Pink, Brown) Output
3: Colored Noise Output

TVCF

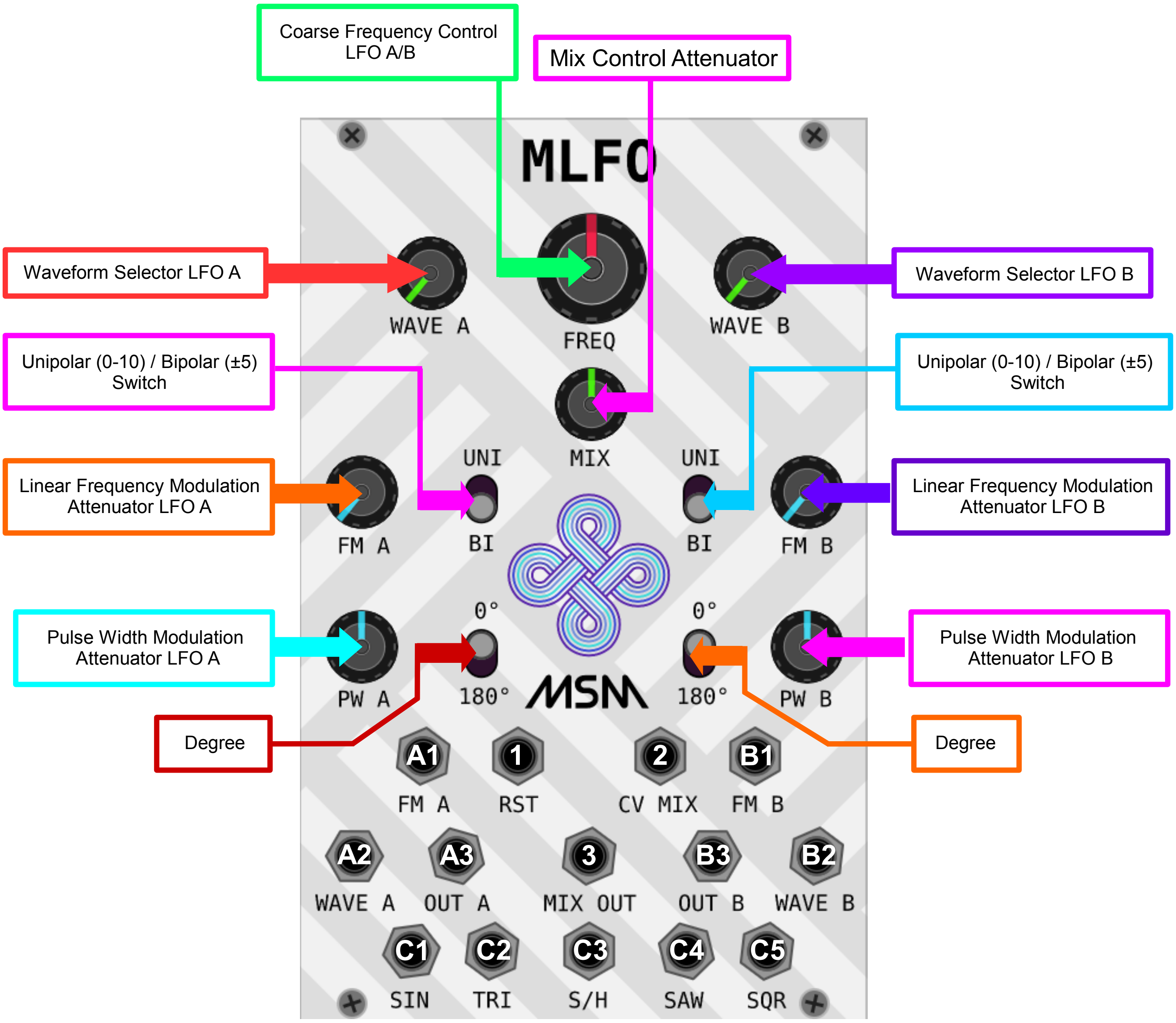
The **TVCF** is using the Twinpeak principle of two inverse-parallel low pass filters, which can be found in hardware modules and intruments like Blippoo Box and 5 MU modules of **Rob Hordijk**, but with different LP-filter implementations and therefor resulting sound.
The inverse parallel architecture of the **TVCF** allows for a wide array of nuances and gradations across the response spectrum. This way the filter offers distinct advantages over a low pass/high pass-series configuration. It can even use gates, triggers or one-shots on the inputs to create warm, percussive ringings and bell-like effects.



1: 1 Volt/Octave Input
2: Control Voltage Dual Mod Input
3: Audio Input A
4: Audio Input B
5: Control Voltage Filter A Input
6: Control Voltage Ping/Resonance Input
7: Control Voltage Filter B Input
8: Main Audio Output

MLFO

MLFO is a low frequency oscillator, which produces cyclical control voltages.
Four waveforms are available: sine, triangle, sawtooth, square wave.
Additional to the four waveform outputs the MLFO also got a sample and hold output.



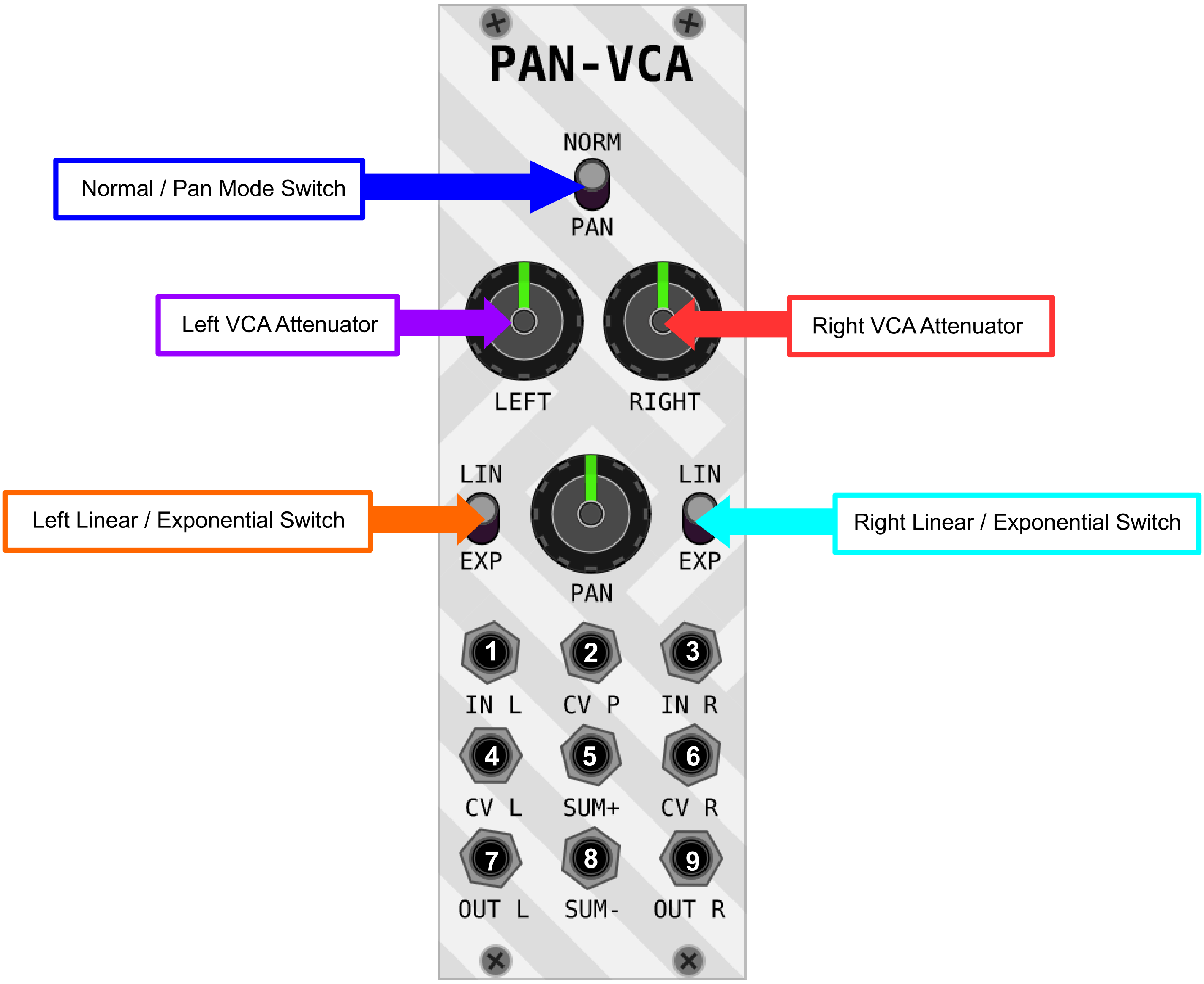
A1: Linear FM (A) Input
A2: Control Voltage Waveform Selector (A)
A3: LFO A (Mix) Output

B1: Linear FM (B) Input
B2: Control Voltage Waveform Selector (B)
B3: LFO B (Mix) Output

1: Reset / Sync Input
2: Control Voltage Mix Control (A/B)
3: Mix Output (A/B)

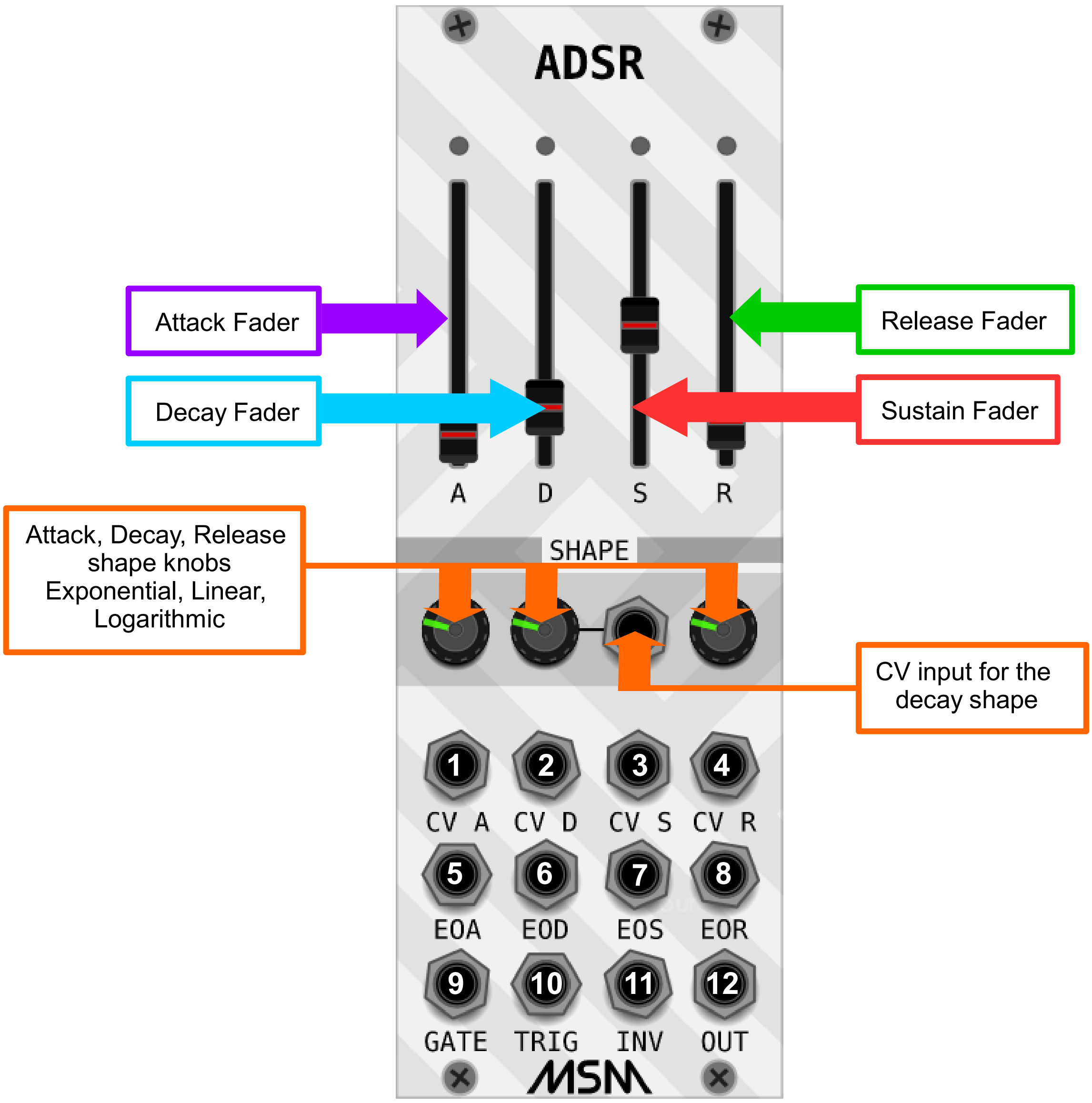
C1: Sine Output
C2: Triangle Output
C3: Sample and Hold Output
C4: Sawtooth Output
C5: Square / Pulse Output

PAN-VCA



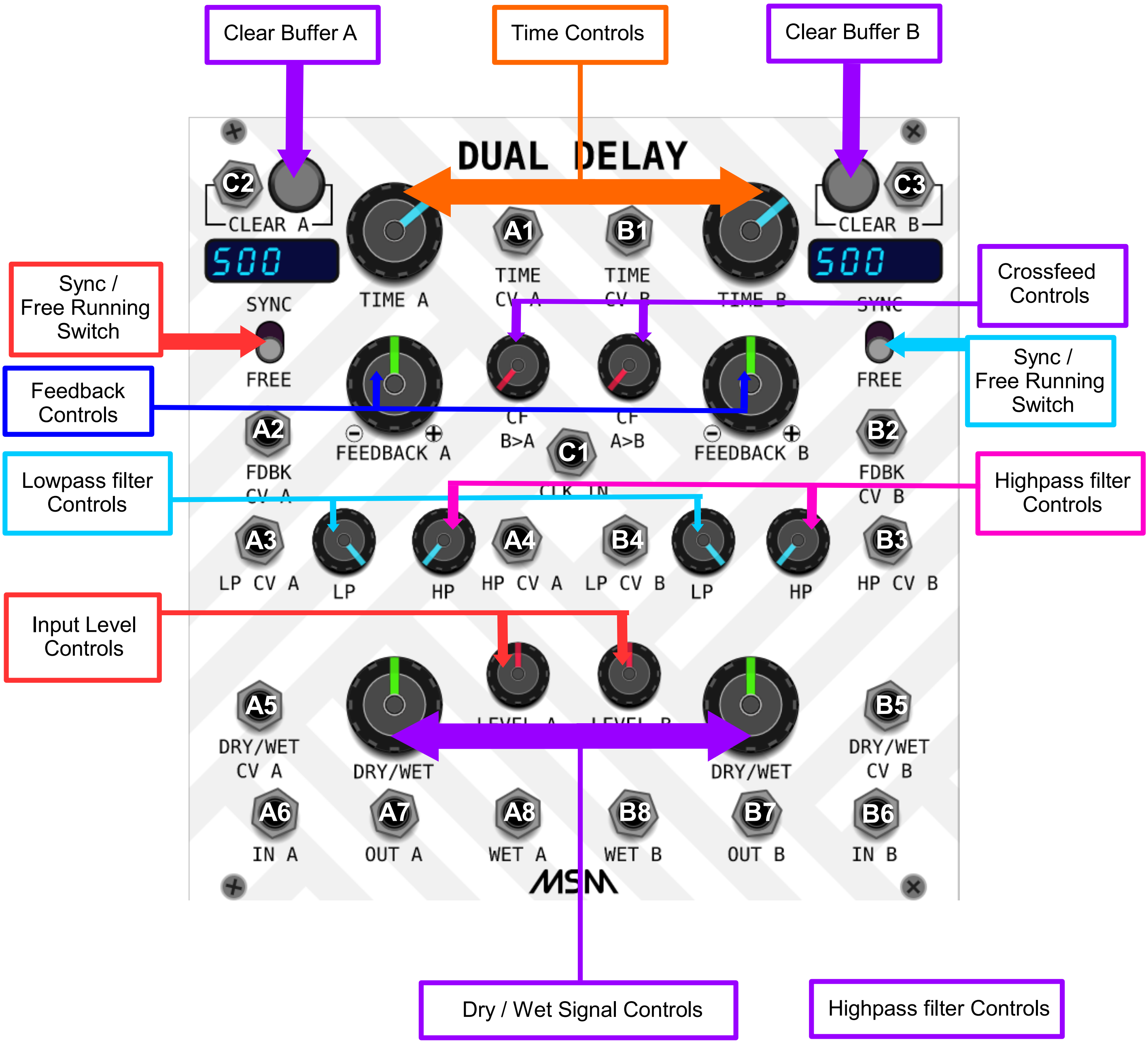
1: Input Left
2: Control Voltage Input Pan
3: Input Right
4: Control Voltage Input Left
5: Sum Output
6: Control Voltage Input Right
7: Output Left
8: Inverted Sum Output
9: Output Right

ADSR



1: Attack Control Voltage Input
2: Decay Control Voltage Input
3: Sustain Control Voltage Input
4: Release Control Voltage Input
5: End of Attack Output
6: End of Decay Output
7: End of Sustain Output
8: End of Release Output
9: Gate Input
10: Retrigger Input
11: ADSR Inverted Output
12: ADSR Output

Dual Delay



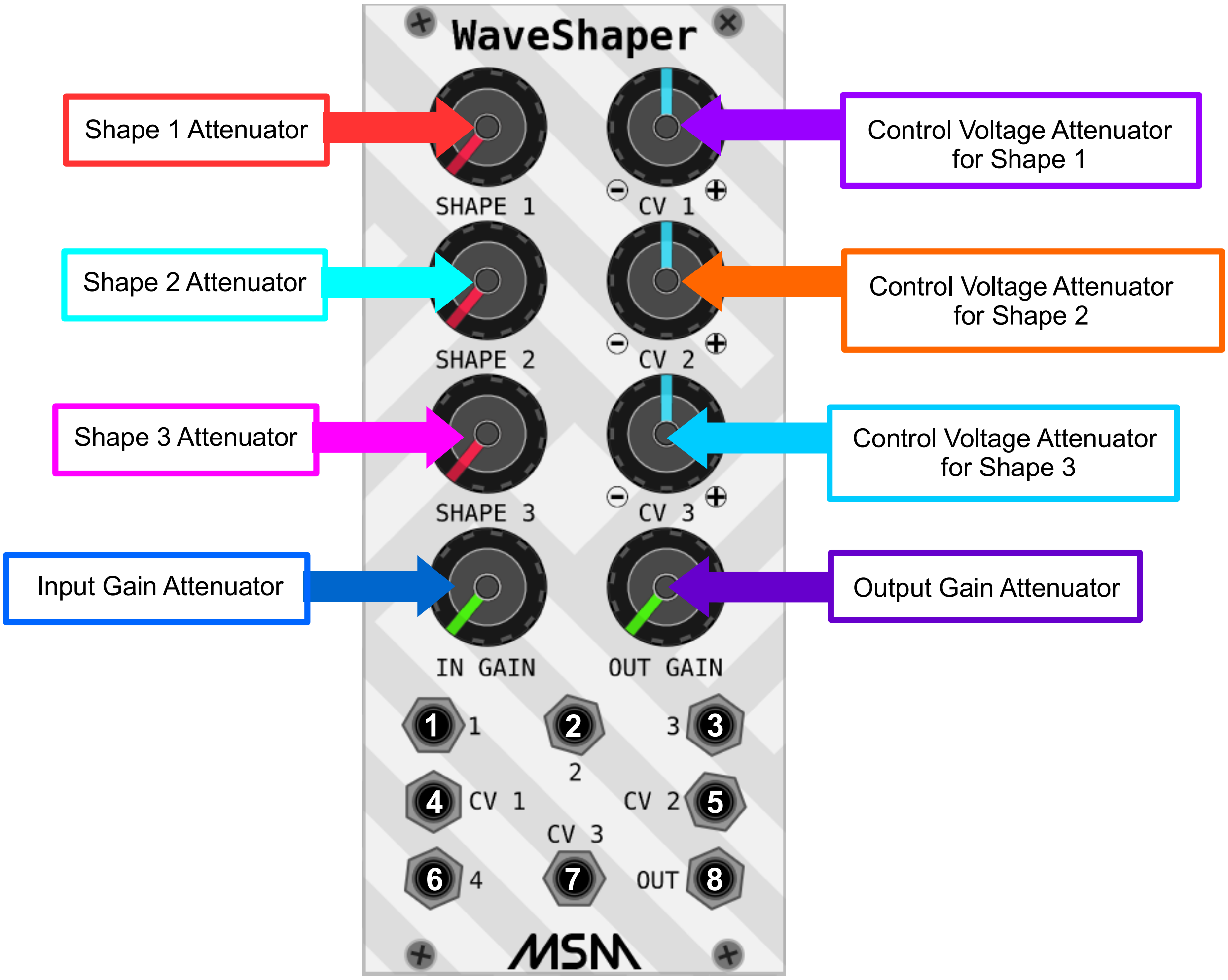
A1: Time Control Voltage Input
A2: Feedback Control Voltage Input
A3: Lowpass Control Voltage Input
A4: Highpass Control Voltage Input
A5: Dry / Wet Control Voltage Input
A6: Audio Input
A7: Audio Output
A8: Wet Output

B1: Time Control Voltage Input
B2: Feedback Control Voltage Input
B3: Lowpass Control Voltage Input
B4: Highpass Control Voltage Input
B5: Dry / Wet Control Voltage Input
B6: Audio Input
B7: Audio Output
B8: Wet Output

C1: External Clock / LFO Input which is needed for using the Dual Delay in Sync mode

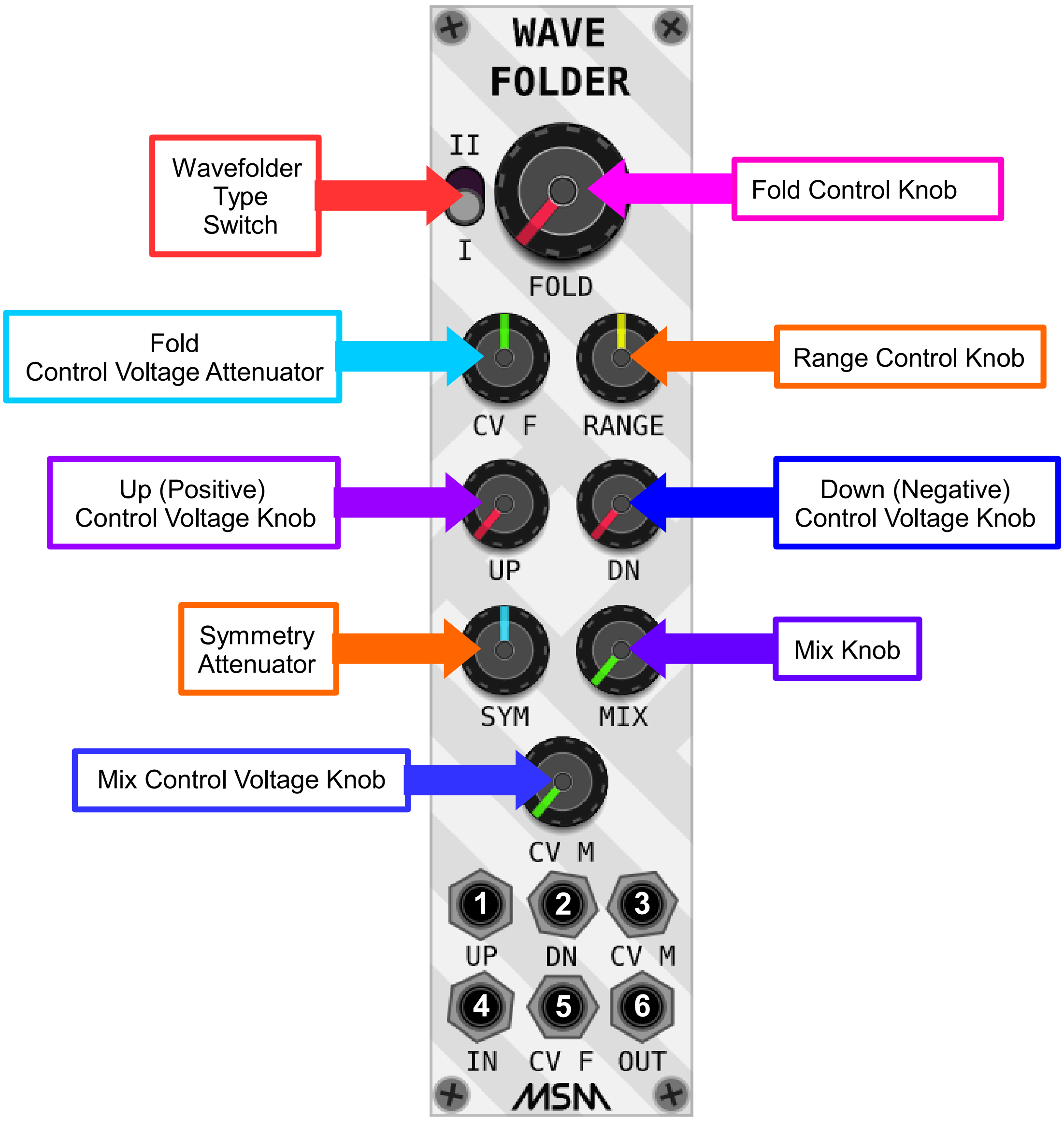
C2: Control Voltage Input To Clear Buffer A
C3: Control Voltage Input To Clear Buffer B
!(the CV inputs need to receive a +10v trigger or gate signal to clear a buffer)**!**

Waveshaper



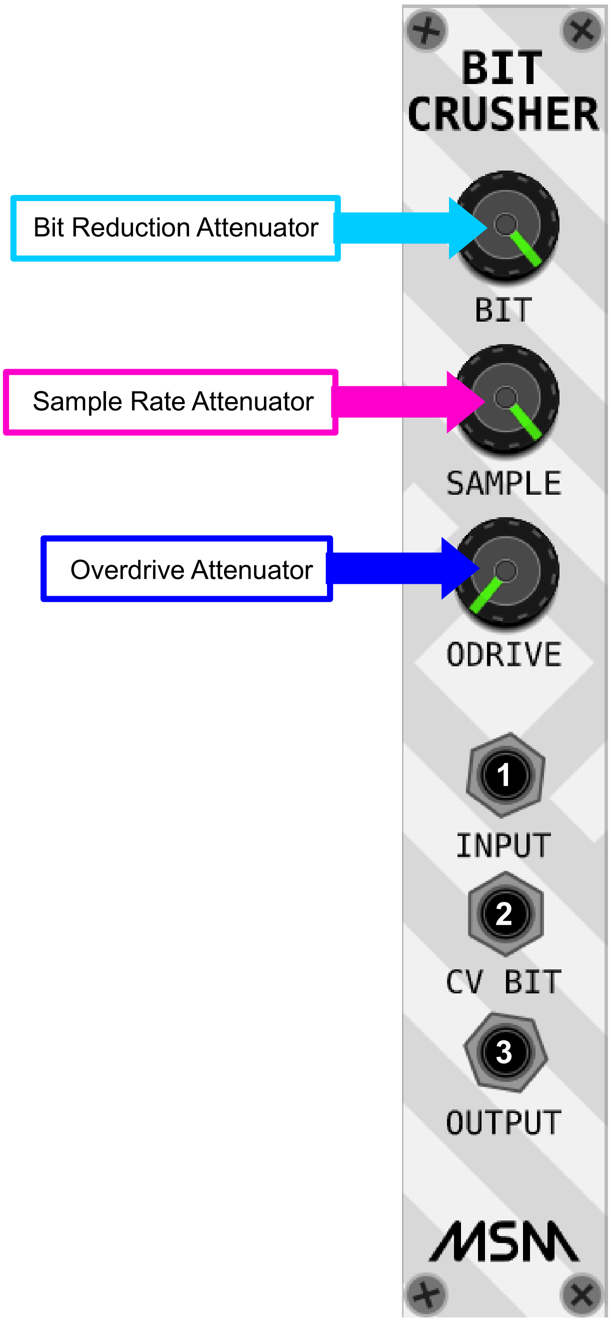
1: Audio / CV Input Shape 1
2: Audio / CV Input Shape 2
3: Audio / CV Input Shape 3
4: Control Voltage Input (Shape 1)
5: Control Voltage Input (Shape 2)
6: Audio / CV Input (All In One)
7: Control Voltage Input (Shape 3)
8: Audio / CV Output

Wavefolder



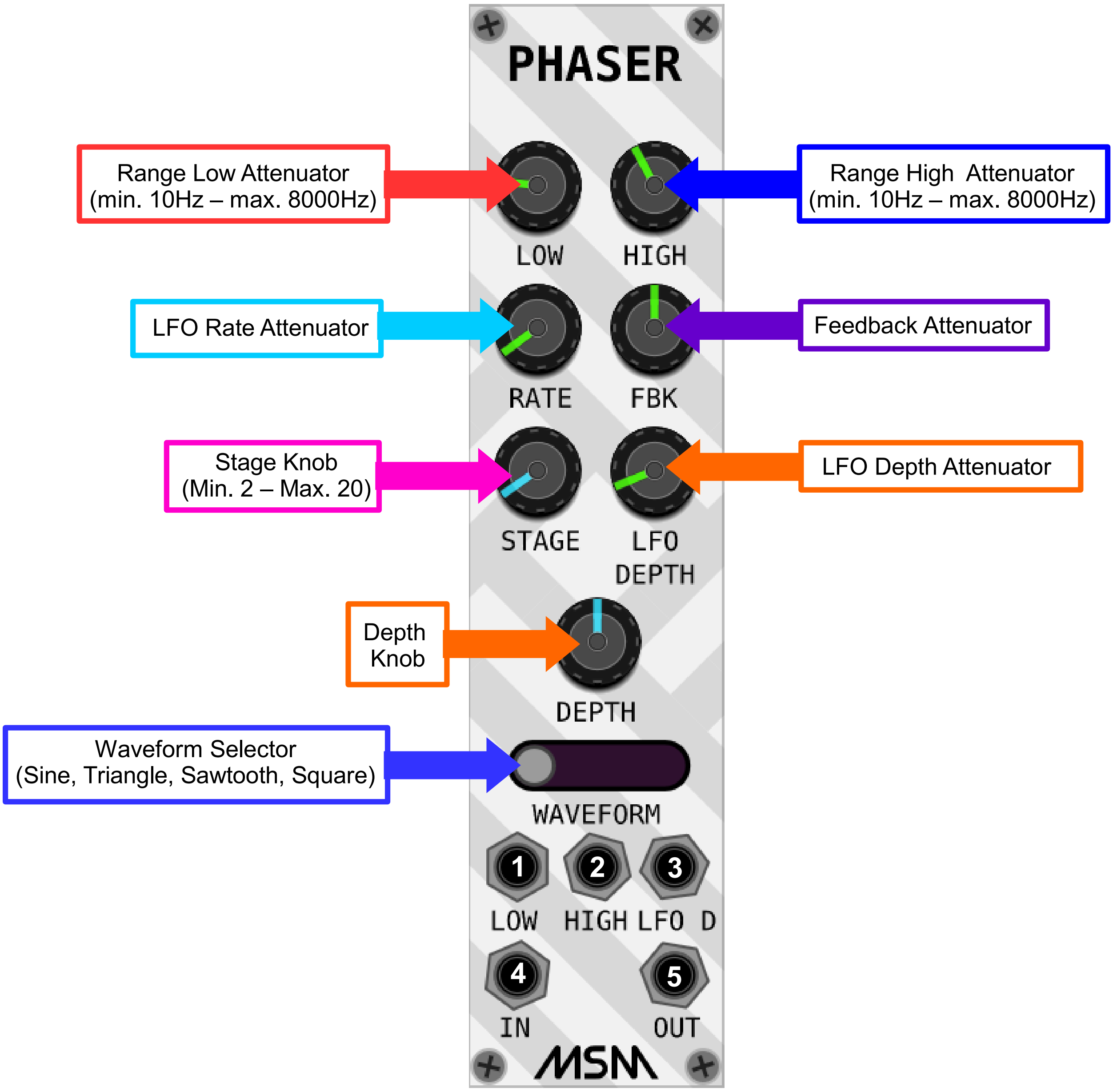
1: Up (Positive) Control Voltage Input
2: Down (Negative) Control Voltage Input
3: Mix Control Voltage Input
4: Audio Input
5: Fold Control Voltage Input
6: Audio Output

Bitcrusher



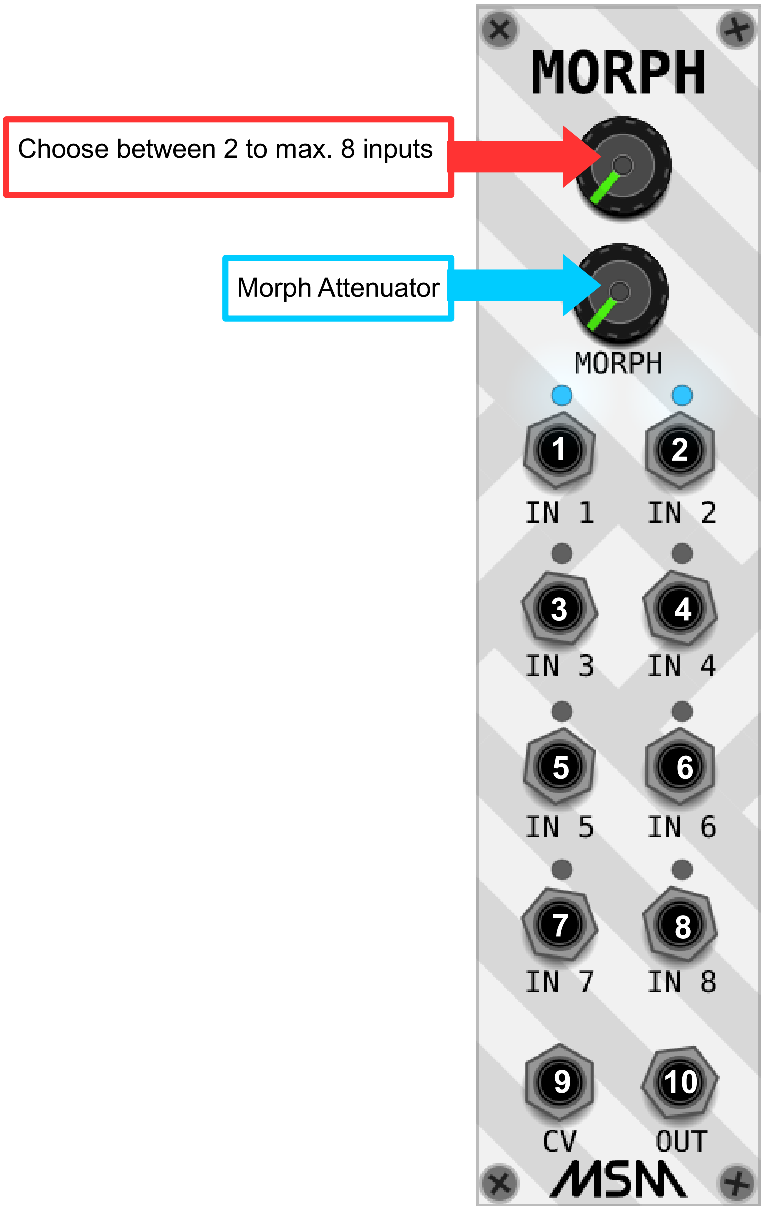
1: Audio Input
2: Bits Control Voltage Input
3: Audio Output

Phaser



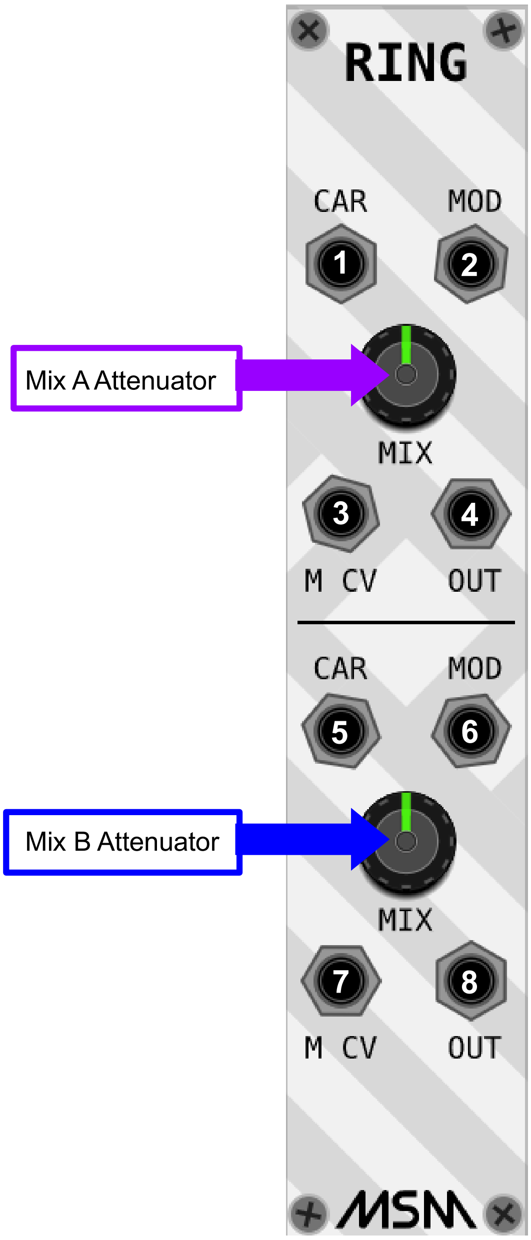
1: Low (Range) Control Voltage Input
2: High (Range) Control Voltage Input
3: LFO Depth Control Voltage Input
4: Audio Input
5: Audio Output

Morph



1: Audio Input 1
2: Audio Input 2
3: Audio Input 3
4: Audio Input 4
5: Audio Input 5
6: Audio Input 6
7: Audio Input 7
8: Audio Input 8
9: Morph Control Voltage Input
10: Audio Output

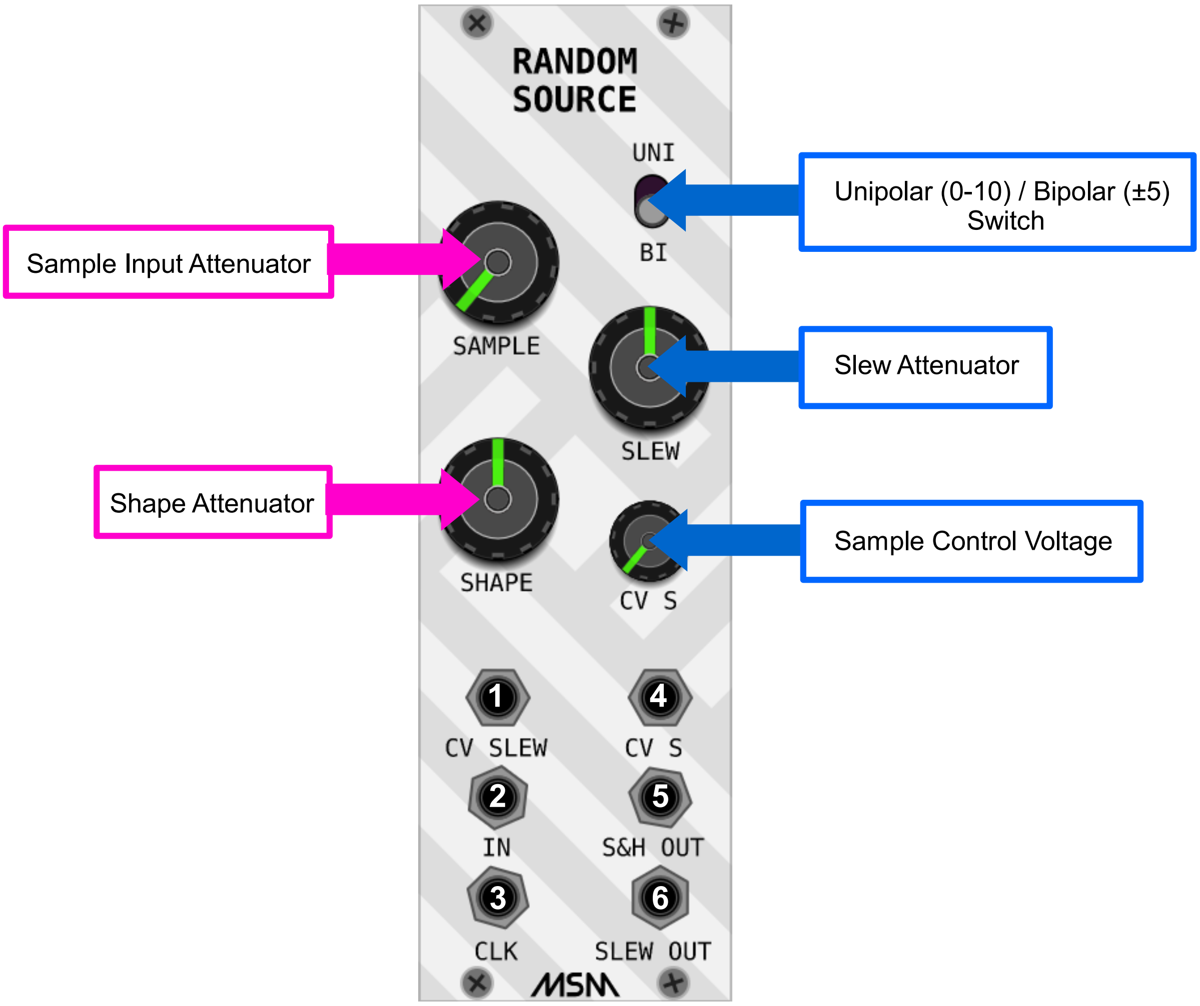
Ring



1: Carrier A Input
2: Modulator A Input
3: Mix A Control Voltage Input
4: Audio A Output
5: Carrier B Input
6: Modulator B Input
7: Mix B Control Voltage Input
8: Audio B Output

RANDOM SOURCE

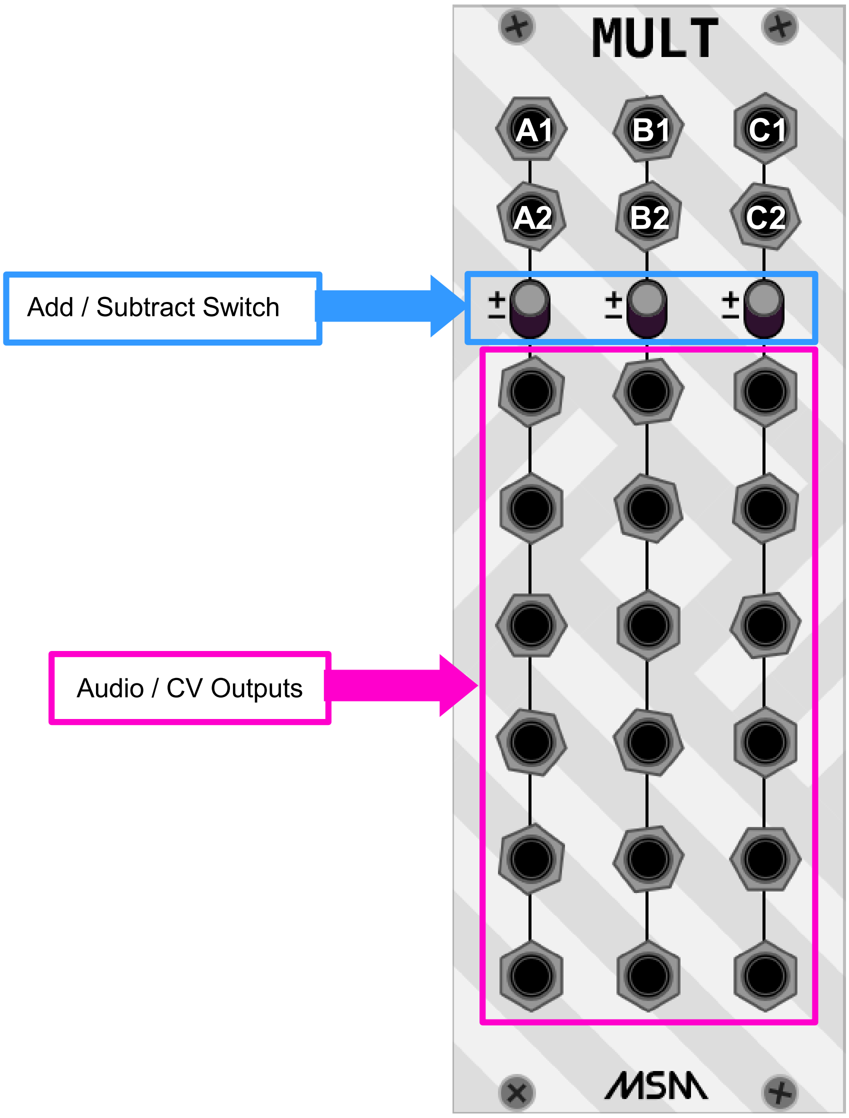
Random Source produces 'staircase' voltages. The signal present at the sample input (IN) is sampled at a rate set by the signal at the trigger input (CLK), and held at the voltage at the sample and hold output (OUT). The exact shape of the staircase depends on the sort of waveform at the sample input.
Noise and Random signals produce random patterns /
LFO produces rising or falling staircase patterns.



1: Slew Control Voltage Input
2: Sample Input
3: Trigger Input
4: Sample Control Voltage Input
5: S&H Output
6: Slewed S&H Output

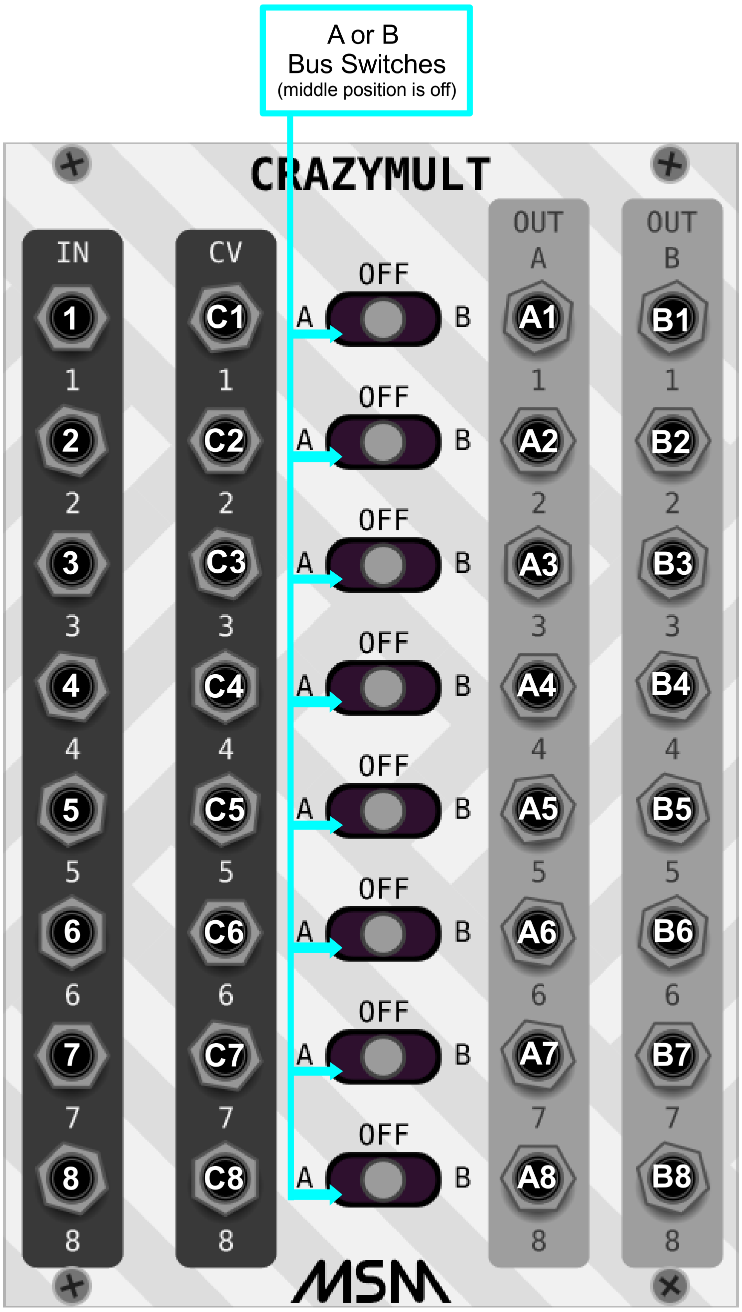
MULT

MULT is a utility module with three independent sections. Each section of the multiple module got two inputs, which are either added or subtracted by each other and split to six copies.
This allows audio or CV signals to be sent to several destinations at once.



A1: Audio / CV Input
A2: Audio / CV Input
B1: Audio / CV Input
B2: Audio / CV Input
C1: Audio / CV Input
C2: Audio / CV Input

CRAZYMULT



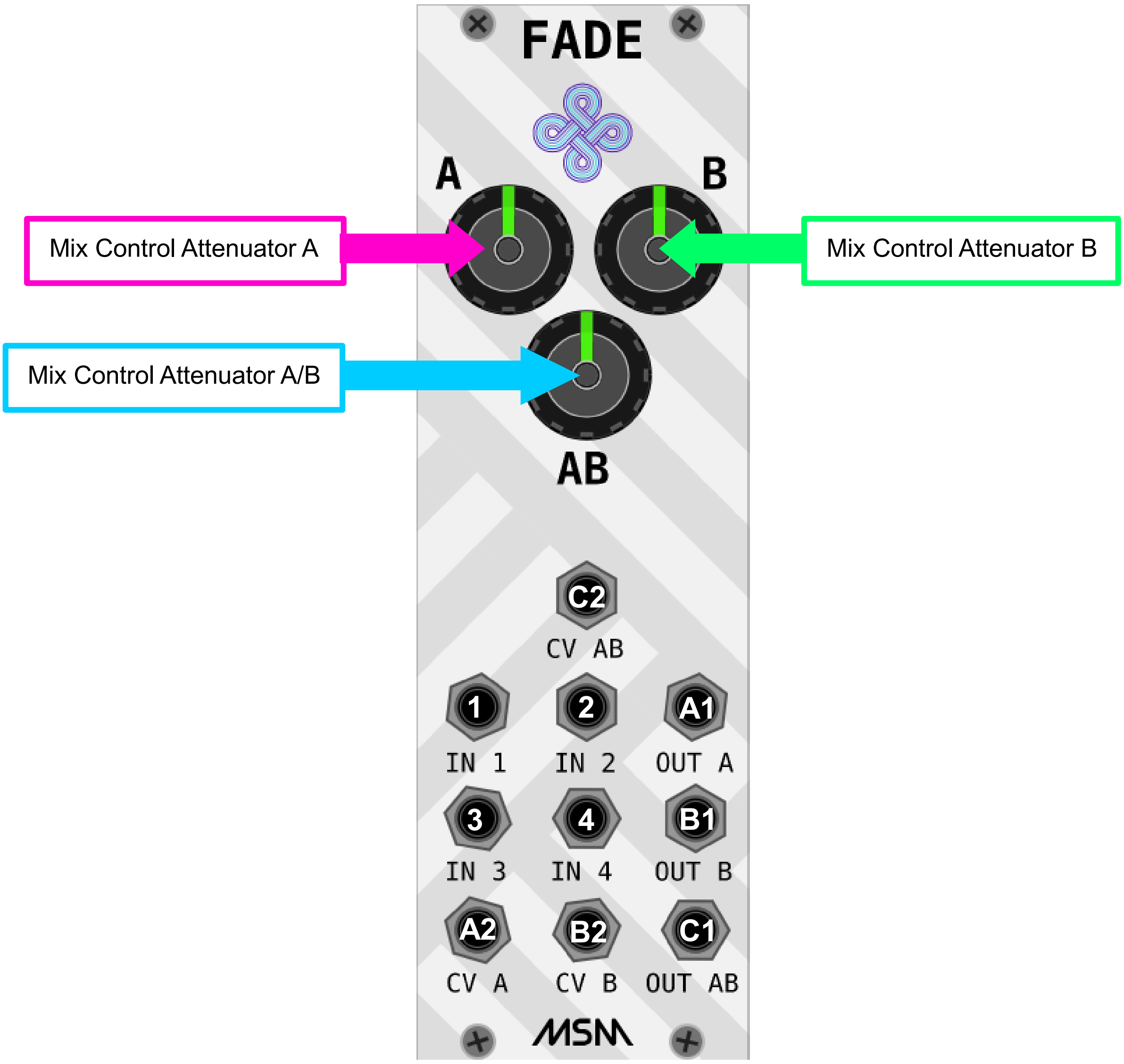
1: Audio Input
2: Audio Input
3: Audio Input
4: Audio Input
5: Audio Input
6: Audio Input
7: Audio Input
8: Audio Input

C1: Control Voltage Input of Switch A-OFF-B - 1
C2: Control Voltage Input of Switch A-OFF-B - 2
C3: Control Voltage Input of Switch A-OFF-B - 3
C4: Control Voltage Input of Switch A-OFF-B - 4
C5: Control Voltage Input of Switch A-OFF-B - 5
C6: Control Voltage Input of Switch A-OFF-B - 6
C7: Control Voltage Input of Switch A-OFF-B - 7
C8: Control Voltage Input of Switch A-OFF-B - 8

A1: Audio Output Bus A
A2: Audio Output Bus A
A3: Audio Output Bus A
A4: Audio Output Bus A
A5: Audio Output Bus A
A6: Audio Output Bus A
A7: Audio Output Bus A
A8: Audio Output Bus A

B1: Audio Output Bus B
B2: Audio Output Bus B
B3: Audio Output Bus B
B4: Audio Output Bus B
B5: Audio Output Bus B
B6: Audio Output Bus B
B7: Audio Output Bus B
B8: Audio Output Bus B

FADE



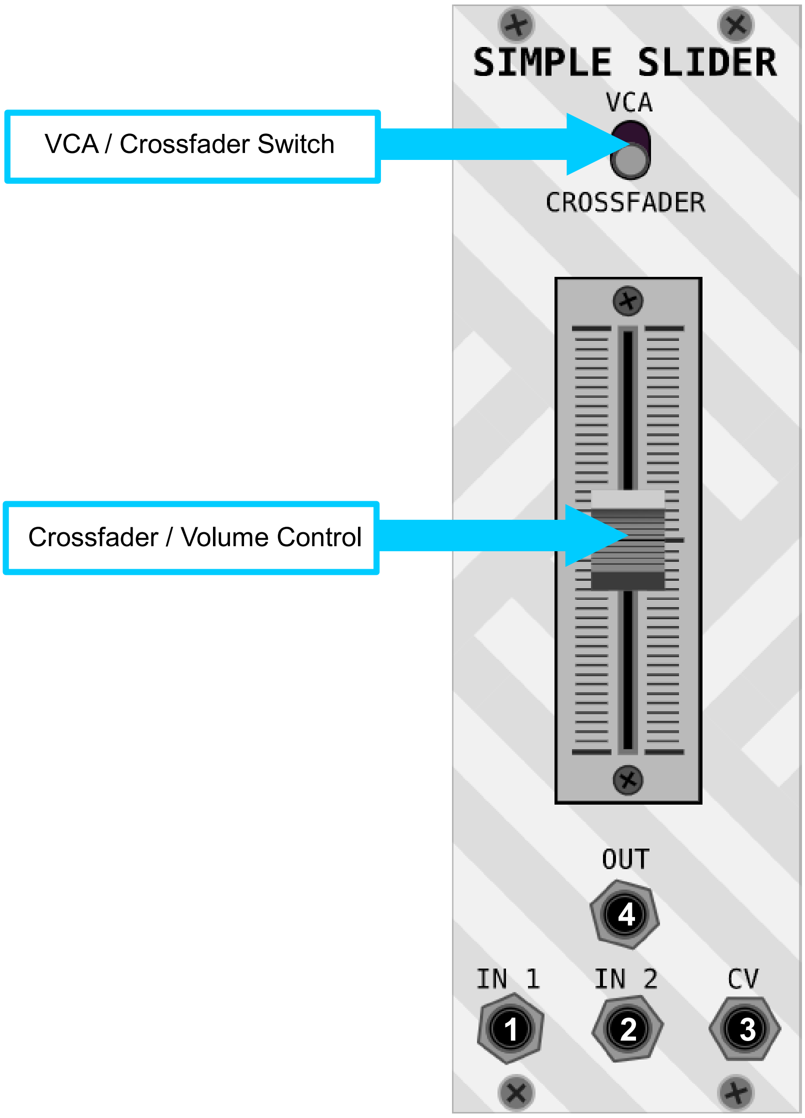
1: Audio / CV Input 1
2: Audio / CV Input 2
3: Audio / CV Input 3
4: Audio / CV Input 4

A1: Audio / CV Output A
A2: Control Voltage Input A

B1: Audio / CV Output B
B2: Control Voltage Input B

C1: Audio / CV Output C
C2: Control Voltage Input C

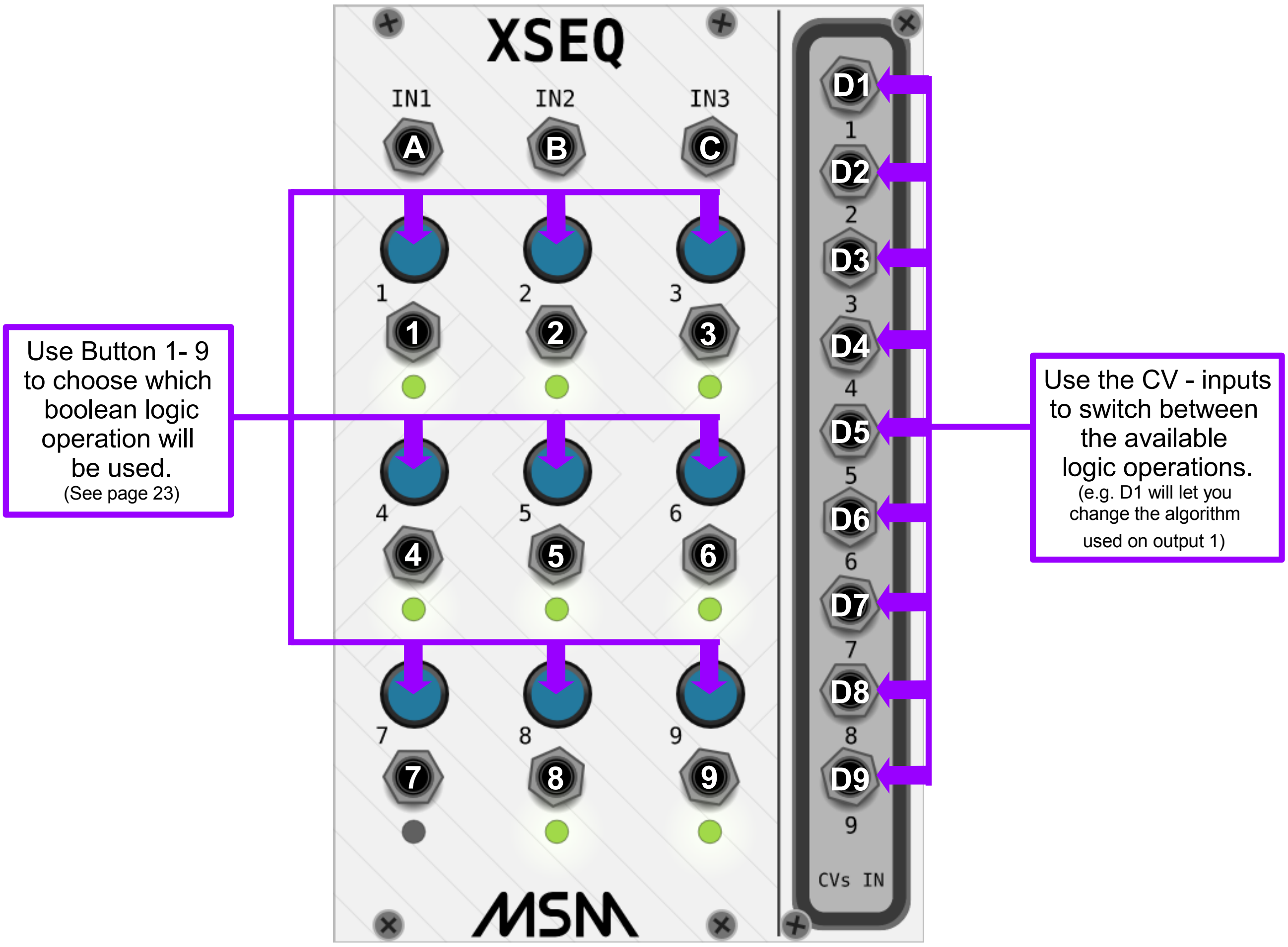
SIMPLE SLIDER



1: Audio / CV Input 1
2: Audio / CV Input 2
3: Control Voltage Input
4: Audio / CV Output

XSEQ

The **XSEQ** is a Sequencer based on boolean logic.
It got 3 clock/lfo inputs (works best with a square wave).
Depending on the different speeds of the clock(s)/lfo(s), send to the module,
it will produce rythmic gates on some or all 9 outputs. The Type buttons let you choose which kind of boolean logic is used on one of the outputs. There are 9 control voltage inputs to change between 2 types of boolean operations which will result in sending a different rhythm to the changed output.
Perfect to create Drum rythms etc.



A: LFO / Clock Input 1
B: LFO / Clock Input 2
C: LFO / Clock Input 3

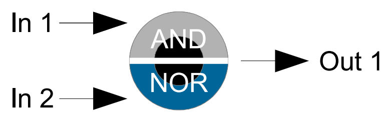
1: Output 1
2: Output 2
3: Output 3
4: Output 4
5: Output 5
6: Output 6
7: Output 7
8: Output 8
9: Output 9

D1: Control Voltage Input 1
D2: Control Voltage Input 2
D3: Control Voltage Input 3
D4: Control Voltage Input 4
D5: Control Voltage Input 5
D6: Control Voltage Input 6
D7: Control Voltage Input 7
D8: Control Voltage Input 8
D9: Control Voltage Input 9

MSM

XSEQ

1



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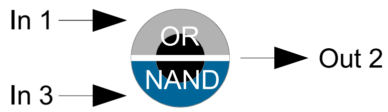

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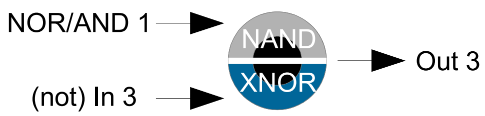

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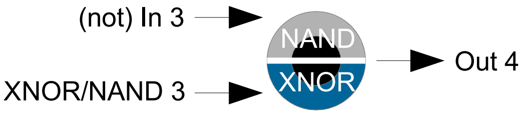

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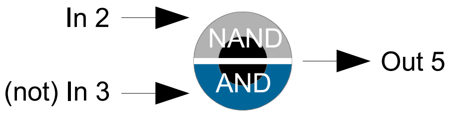

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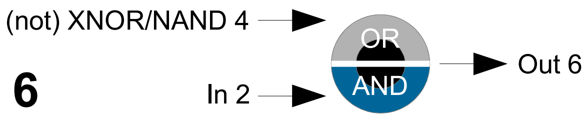

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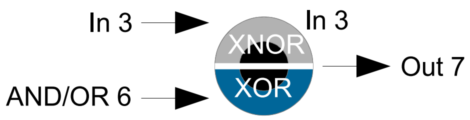

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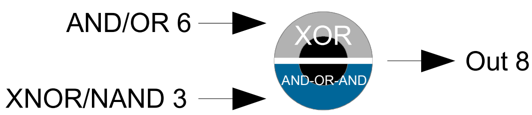

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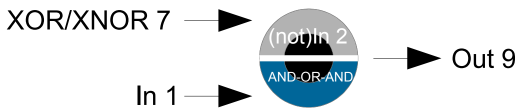
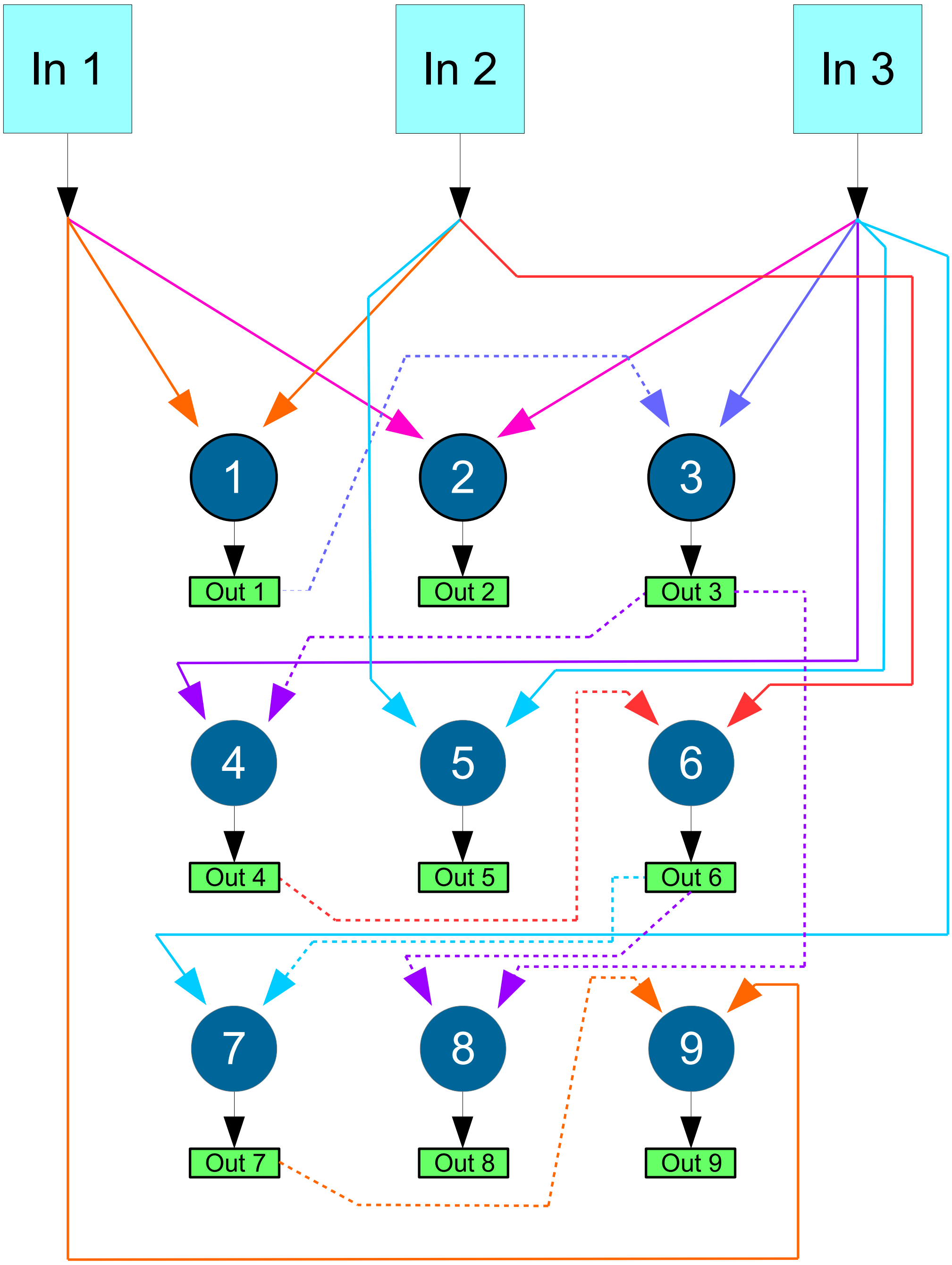


XSEQ



In 1
In 2
In 3
1
2
3
Out 1
Out 2
Out 3
4
5
6
Out 4
Out 5
Out 6
7
8
9
Out 7
Out 8
Out 9