

# 3-BIT

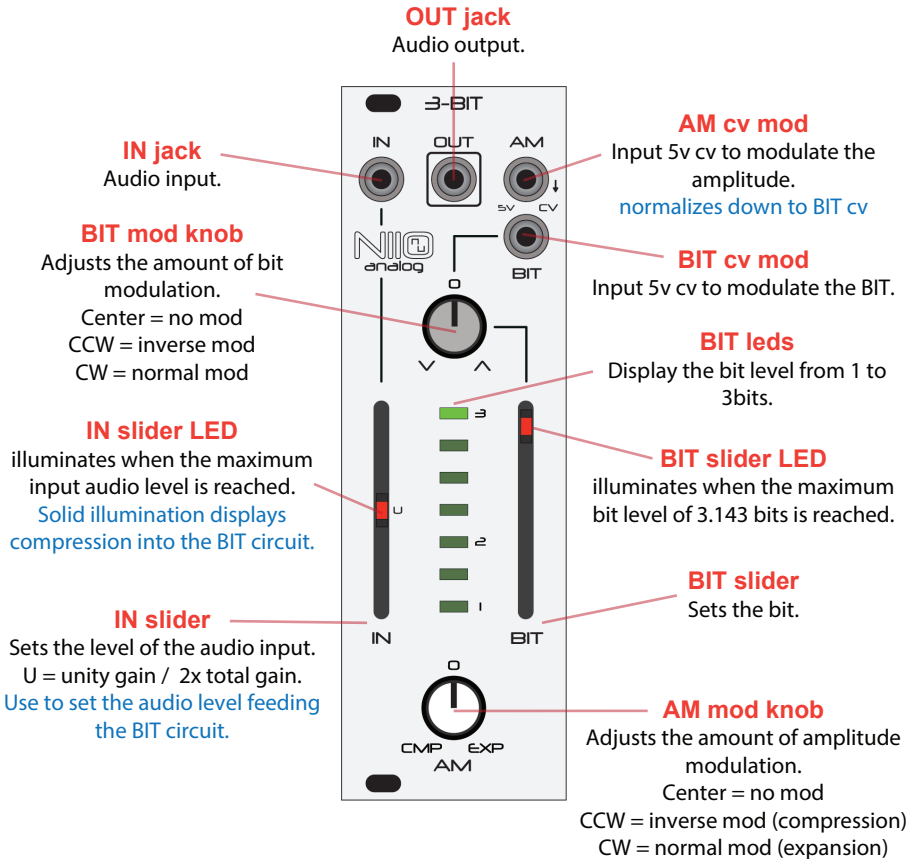
## analog bit reducer / VCA

3-BIT is an analog circuit that transforms audio waveforms into 9 bipolar levels creating a "digital" stepped waveform.

The levels can be reduced from 9 to 8 to 7... to 0.

The (BIT) slider and cv input step thru the 9 bit levels.

The overall gain of the waveform can be modulated by the (AM) cv input acting as a smooth vca over the BIT circuit.



width: 8hp depth: 37mm 75ma +12v 48ma -12v

## IN jack

The audio input.

Typical use case is to patch in an oscillator.  
Simple waveforms ([sine](#)/tri/saw) work best.

[See DC coupled audio input diagram](#)

## IN slider

Adjusts the gain of the incoming waveform. Center (U) position = unity gain. Total gain above unity is 2X.

The BIT circuit has a fixed voltage range, use the slider to maximize the gain of the incoming audio into the BIT circuit. The red LED illuminates when the audio utilizes the full 3.143 bits of the circuit. This fixed ceiling acts as a limiter to the incoming waveform.

illuminate the red LED on the peaks of the waveform for the **ideal** gain.

**Over** ideal gain compresses the waveform into the bit ceiling. Use the IN slider to control the amount of compression.

**Under** ideal gain reduces the amount of bits representing the waveform.

## BIT slider

The BIT slider sets the total bits available within the BIT circuit.

There is a total of 9 bipolar audio levels that can be output. Each BIT level has a different character.

As the bits are reduced from 9 levels to 0 the wave form is simplified down to a squarewave at level 1. The gain of the waveform is reduced with the bit levels. At level 0 the waveform is off.

BIT can be used as a stepped VCA .

## BIT CV

Use 5v CV to modulate the BIT. The BIT mod knob determines the amount of modulation that is added to the BIT slider position. Center is off, CW adds to the slider position, and CCW subtracts from it.

## AM CV

The AM cv input and mod knob control the overall level of the BIT circuit. This acts as a smooth linear VCA independant from the BIT level. Use 5v CV to modulate the gain of the output.

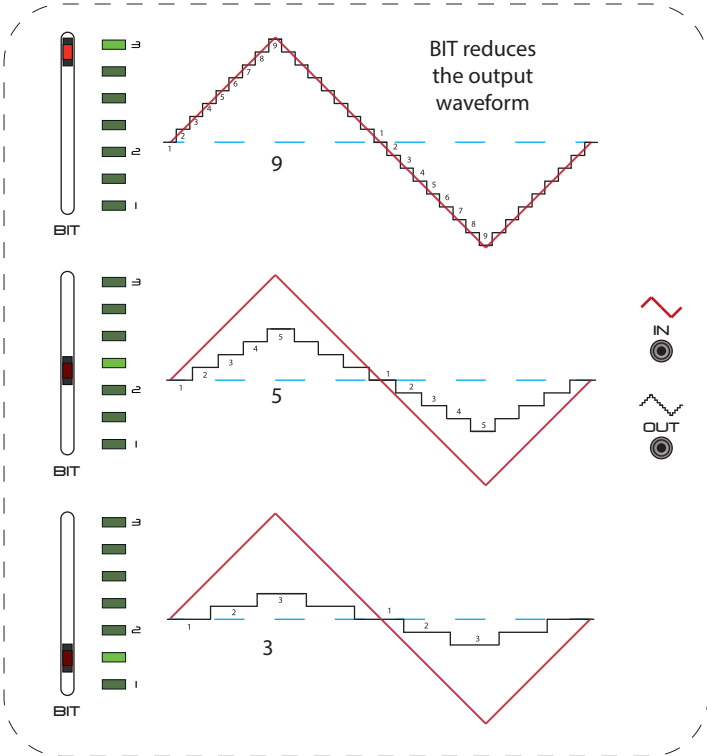
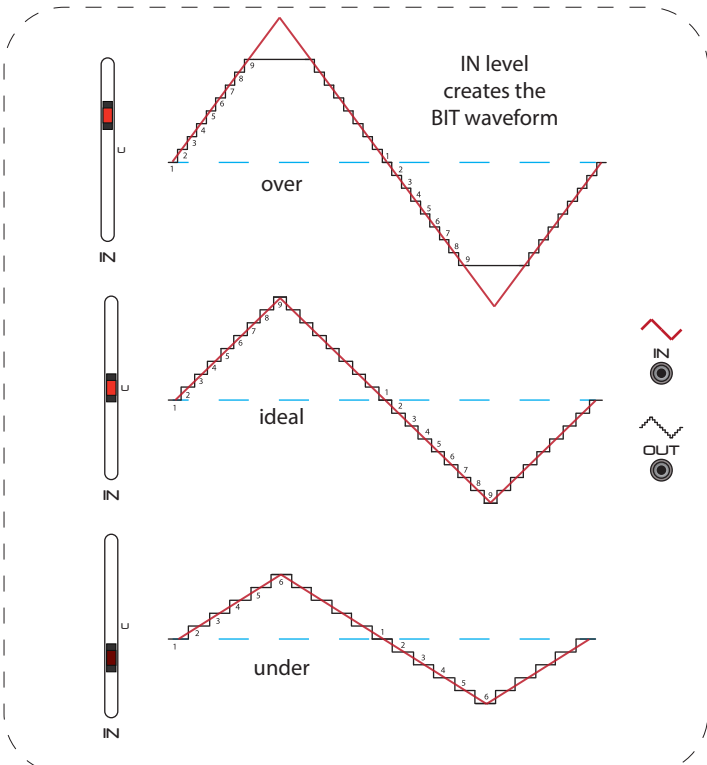
The AM mod knob determines the amount of amplitude modulation. Center is off, CW pos affects the gain (expansion), and CCW subtracts from the gain (compression).

[Finding silent gain with EXP may take backing off a bit from full CW.](#)

[The AM jack is normalized to the BIT jack, allowing a single patch to affect both.](#)

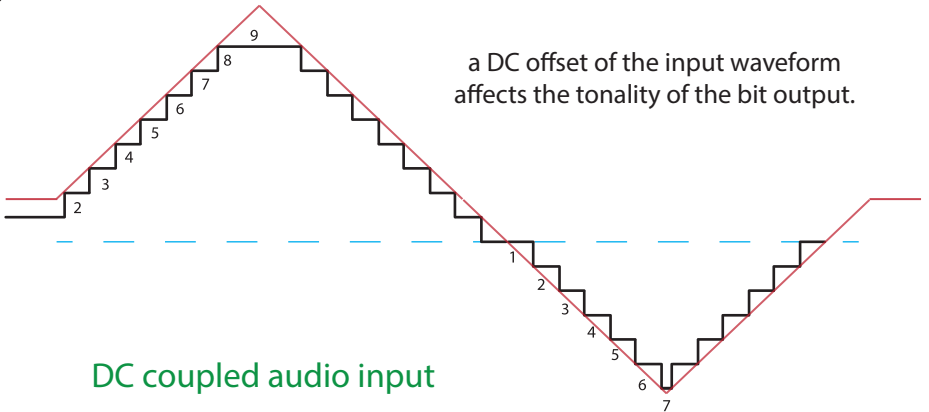
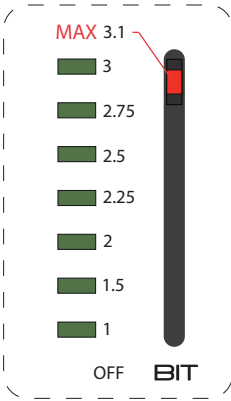
## OUT jack

The audio waveform output.





MAX 3.143 BITS  
9 levels



a DC offset of the input waveform  
affects the tonality of the bit output.

DC coupled audio input