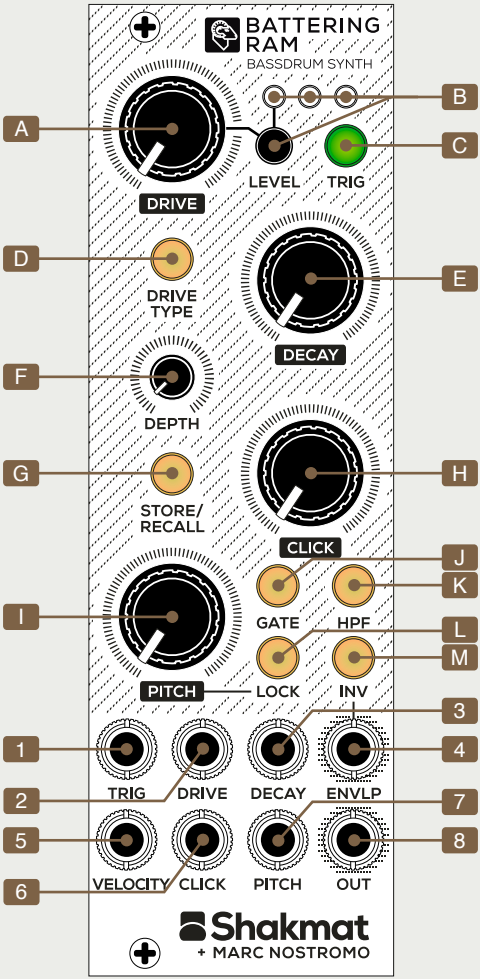
Shakmat Battering Ram

- 8HP Eurorack Module
- Built & designed in E.U.
- www.shakmat.com


BATTERING RAM
BASSDRUM SYNTH
A
B
C
LEVEL
TRIG
DRIVE
D
DRIVE TYPE
E
DECAY
F
DEPTH
G
STORE/ RECALL
H
CLICK
J
K
I
GATE
HPF
L
M
PITCH
LOCK
INV
3
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TRIG
DRIVE
DECAY
ENVLP
2
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VELOCITY
CLICK
PITCH
OUT
6
Shakmat
+ MARC NOSTROMO

Introduction

The Battering Ram is a bass drum synthesizer based on an original design by Marc Nostromo. This module offers precise control over various parameters, including decay, tuning, depth, click amount, and drive. These controls have been thoughtfully mapped to provide sweet spots at every combination of potentiometer settings.

The drive section can seamlessly transition between two distinct wave-shaping modes, ranging from smooth drive/compression to hard-clipping distortion for core music lovers. For smooth modular integration, there's an additional output that mirrors the amplitude envelope or its inverted shape.

The module also boasts other convenient features, such as storing and recalling potentiometer settings, a 3-pole high-pass filter, and the option to use gates instead of triggers. Despite its compact size, the Battering Ram delivers a diverse range of bass drum sounds, from long sub-bass drums to aggressive techno kicks.

- A Drive potentiometer
- B Level button & LEDs
- C Trigger button
- D Drive Type button
- E Decay potentiometer
- F Depth potentiometer
- G Store/Recall button
- H Click potentiometer
- I Pitch potentiometer
- J Gate button
- K HiPass Filter button
- L Pitch Lock button
- M Envelope inversion button
- 1 Trigger CV input
- 2 Drive CV input
- 3 Decay CV input
- 4 Envelope output
- 5 Velocity CV input
- 6 Click CV input
- 7 Pitch CV input
- 8 Output

Installation

The Battering Ram requires a standard 2x8 pin Eurorack power cable. Make sure that the red stripe on the cable aligns with the -12V side of the Battering Ram's power header.

Basics

Like every percussion module, the Battering Ram requires a trigger or gate signal patched into the trigger input **[1].** Alternatively, you can directly trigger the kick drum by pressing the Trigger button **[C]**

The Battering Ram's sound is influenced by five key parameters:

Pitch: The pitch potentiometer **[I]** spans a range of two octaves from C1 to C3, with C2 in the middle. It can be further modulated using the V/oct input **[7],** accepting CV signals from 0 to 5 volts. This input allows you to use the Battering Ram as a bassline or tom/mid-percussion generator. Note it is possible to expand the pitch potentiometer range to five octaves. To do so, refer to the *Advanced Options* section of this manual.

Decay: The decay potentiometer **[E]** and CV input **[3]** affect the length of the decay.

Click: The click potentiometer **[H]** controls the amount of envelope applied to the pitch, adding a clicky transient to the bass drum. This parameter also features a dedicated CV input **[6].**

Depth: The depth parameter **[F]** regulates the decay of the pitch envelope, impacting the kick drum's pitch. At its minimum value, the envelope becomes very clicky, while increasing it makes the envelopes resemble a typical 909 kick drum.

Drive: The Battering Ram offers two distinct types of drive/distortion. The first type (indicated by a green Drive button) features a complex two-stage wavefolder that adds harmonics and compression to the sound without excessive distortion.

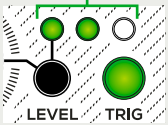
The second type (indicated by a red Drive button) is closer to clipping distortion and introduces a higher amount of harmonics. To switch between these drive types, press the drive type button [D]. The amount of distortion is controlled by the drive potentiometer [A] and can also be modulated using the drive CV input [2].

Velocity & Level

The Battering Ram features a unipolar Velocity input [5] that can be used to control the output level. The level of each hit/note is indicated by the three green level LEDs [B].

No patch cable is inserted

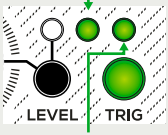
Level
(from left to right)



When the Velocity input [5] is not connected, the module will consistently produce sound at the same loudness level. You can adjust the output level by simultaneously holding the Level button [B] and turning the Drive potentiometer [A]. The three green Level LEDs will indicate the volume setting. Once you release the Level button, you will need to turn the Drive potentiometer [A] past its previous position to reactivate it. The Drive button [D] will blink until the Drive potentiometer passes its the previous position.

Patch cable is inserted

Mini. level
(0v received at Velocity CV input)



Max. level
(5v received at Velocity CV input)

When the Velocity input [5] is in use, the sound's loudness will vary based on the CV value sent to it at the time of the trigger. With a patch cable inserted into the Velocity input, you can define the minimum level (i.e., the level played when 0v is received) by holding the Level button [B] and turning the Drive potentiometer [A]. The three green Level LEDs will indicate the volume range. When setting the minimum level at 0 (potentiometer fully counter-clockwise), the level is null when the 0v is received into the Velocity CV input.

Note that the Velocity CV input is unipolar and accepts a range of 0 to 5v.

Gate Mode

By default, the module responds to rising edges while ignoring the length of the gate received at the Trigger input **[1].** However, it is possible to incorporate a hold stage into the kick envelopes. To enable this, press the Gate button **[J].** This feature, when combined with the V/Oct compatibility of the Pitch CV input **[7],** transforms the Battering Ram into a versatile and powerful bassline module.

HiPass Filter

The HPF mode includes a 3rd-order 30Hz low-cut filter designed to remove infrasub-frequencies, which can otherwise occupy a substantial portion of the signal's headroom. To engage the High-Pass Filter, simply press the HPF button **[K].**

Envelope Out

The Battering Ram features an Envelope output **[4]** that provides the kick amplitude envelope. It is possible to invert the envelope's polarity for ducking effects. To do this, press the Inversion button **[M]** (the button is now on).

Pitch Lock

The Lock button **[L]** allows to lock the tuning of the kick drum:

A quick press of the Lock button **[L]** will lock the current pitch set by the potentiometer **[I],** transforming it into an octave switcher able to shift the pitch one octave up or down.

Note: Once you disable the pitch lock, you'll need to turn the Pitch potentiometer past its previous position to reactivate the continuous pitch control. The Lock button **[D]** will blink until the Pitch potentiometer **[I]** passes its previous position.

Store & Recall

This feature allows to capture a snapshot of the panel and subsequently recall all the stored settings. To save the settings, press and hold the Store/Recall button **[G]** for a couple of seconds. To recall the stored parameters, simply perform a short press on the button. The button remains illuminated until all the parameters have been successfully recalled. Each time a parameter is unlocked, the button **[G]** blinks once.

Select Bus

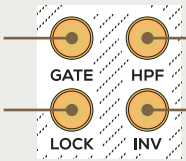
The Battering Ram has a non-volatile memory of 16 presets which can be saved and loaded thanks to the Select Bus protocol. The Battering Ram handles the Select Bus protocol as a receiver. A Select Bus transmitter like the Harlequin's Context, is needed in order to save or load presets. For more information about the Select Bus protocol, check the support section of our website.

Advanced Parameters

To access the advanced parameters menu, press and hold the Lock and Inv **[L&M]** buttons for 5 seconds. A bouncing animation occurs on the Level LEDs **[B]** and the Store/Recall button **[G]** blinks. Press it to get out of the advanced parameters menu.

Select Bus activation:
Button On/Off means Select Bus On/Off

Range of the Pitch potentiometer:
2 octaves, C1 to C3, button is off
5 octaves, C0 to C5, button is on



Set the amplitude of the Envelope output:
0 to 5v, button is off
0 to 8v, button is on

Polarity of the inverted envelope :
Positive, button is off
Negative, button is on

Factory Reset

To perform a factory reset, hold the Level button at startup. The Level LEDs, Gate and HPF buttons will blink. Press HPF button to confirm the Factory Reset or press the Gate button to ignore it and go back to the module's normal operation.

Specifications

Size	Pitch & Velocity inputs
8 HP	0 to +5V
Depth	Other CV inputs
21 mm	-5 to +5v
Current Draw	Audio outputs
85 mA @ +12V	-5 to +5V
10 mA @ -12V	