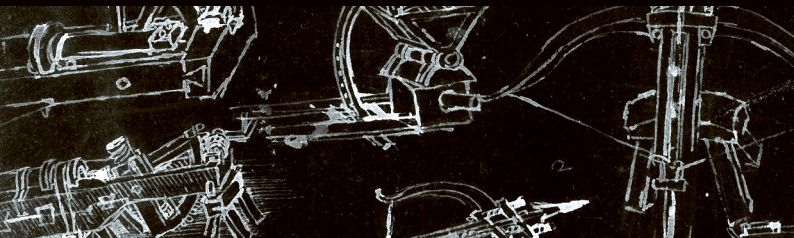


# Shakmat Ballista Blast Expander

- 4HP Eurorack Module
- Built & designed in E.U.
- [www.shakmat.com](http://www.shakmat.com)



## Introduction

The Ballista Blast Expander adds a flexible modulation source to enhance your Ballista Blast. The main module is fully CV controllable and gives CV access to almost any parameter but what if you can have a dedicated modulation source assignable with configurable depth to the key parameters of the Ballista Blast? What if those modulation settings can be stored and recalled with your favourite presets? This is what this expander has to offer.

Did we say you can have two expanders per Ballista Blast? Two expanders, two times more modulation, twice the fun.



This quick start guide only describes the basic features and functionalities of the Ballista Blast Expander. For the complete user manual, please check our website at [www.shakmat.com/support](http://www.shakmat.com/support)

## Specifications

Size	Depth	CV inputs	CLK/TRIG input
4 HP	21 mm	-5 to +5v	0 to +5v

## Installation

Plug the ribbon cable to the expander, with the red stripe matching the white line on the Expander PCB. The expander has to be connected to the corresponding expander port on the Ballista Blast (expander 1 on port 1, expander 2 on port 2).

Enable the expander in the expander 1 or expander 2 page of the global options menu of the Ballista Blast.

## Activity LEDs

The green and red LEDs indicate the positive and negative parts of the modulation signals produced by the expander.

## Modulation Controls

The **SHAPE/ATTACK** potentiometer sets the LFO waveform shape or the envelope attack time.

The **TIME/DECAY** potentiometer sets the LFO rate or the envelope decay/release time.

The **DEPTH** potentiometer sets the modulation amount applied to the selected destination.

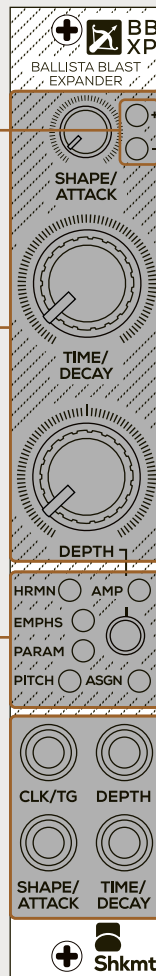
## Destination controls

To assign the expander to one or more destinations, use the destination button. Pressing the button cycles through the six available destinations.

<input checked="" type="radio"/> HRMN	<input type="radio"/> AMP	Destination selected	<input type="radio"/> HRMN	<input type="radio"/> AMP	Destination unselected and inactive
<input type="radio"/> EMPHS	<input checked="" type="radio"/> PARAM				
<input type="radio"/> PITCH	<input type="radio"/> ASGN				
<input type="radio"/> HRMN	<input type="radio"/> AMP				
<input checked="" type="radio"/> HRMN	<input type="radio"/> AMP	Selected destination but the DEPTH potentiometer does not match the stored value	<input type="radio"/> HRMN	<input type="radio"/> AMP	Destination unselected but active
<input type="radio"/> EMPHS	<input checked="" type="radio"/> PARAM				
<input type="radio"/> PITCH	<input type="radio"/> ASGN				
<input type="radio"/> HRMN	<input type="radio"/> AMP				

INFO

Holding the destination button for two seconds clears the depth values for all destinations. The **DEPTH** potentiometer can be set to work as an attenuverter using the global options menu of the Ballista Blast.



## Menus

When the expander is activated, the Ballista Blast modulation menu provides three pages dedicated to each expander:

- The Expander Mode page (*EXP MODE*) defines the modulation type as LFO or envelope, and its behavior. When in LFO mode, settings such as sync and clocked modes are available. When in envelope mode, several types are available such as AR, AD, and others.
- The Expander Shape page (*EXP SHAPE*) provides multiple envelope response curves and several LFO waveforms (skewed ramp, random, sequencer,...).
- The Expander Assignment page (*EXP ASGN*) defines the value for the assignable destination (**ASGN**). This destination can be used to modulate the main envelope or vary parameters of the other expander.

The Random and Velocity menus of the Ballista Blast also include additional pages that allow the modulation of the expander parameters.

## Inputs

Three inputs are dedicated to CV control of **DEPTH**, **SHAPE/ATTACK** & **TIME/DECAY**. Use the **CLK/TG** input to clock the LFO from an external source.