Shakmat
Bard Quartet

● 10HP Eurorack Module   ● Built & designed in E.U.   ● www.shakmat.com

BARD QUARTET
Quad Programmable Quantizer

- **A**
- **B** — HARMONY
- **C** — 1 2 3 4
- **D** — EDIT
- **E**
- **F** — ARPG / μTUNE / MEMORY / OPTION
- **1** — TRIG OUT
- **2** — GT IN
- **3** — IN 1 / IN 2 / IN 3 / IN 4
- **4** — TRSP
- **5** — OUT 1 / OUT 2 / OUT 3 / OUT 4
- **6** — HRMN

OCT: -3, -2, -1, 0, +1, +2, +3

T OUT — ▲ ▼
GT IN
TRSP
OCT
PRE
POST

HARMONY: 1 2 3 4 5 6 7 8

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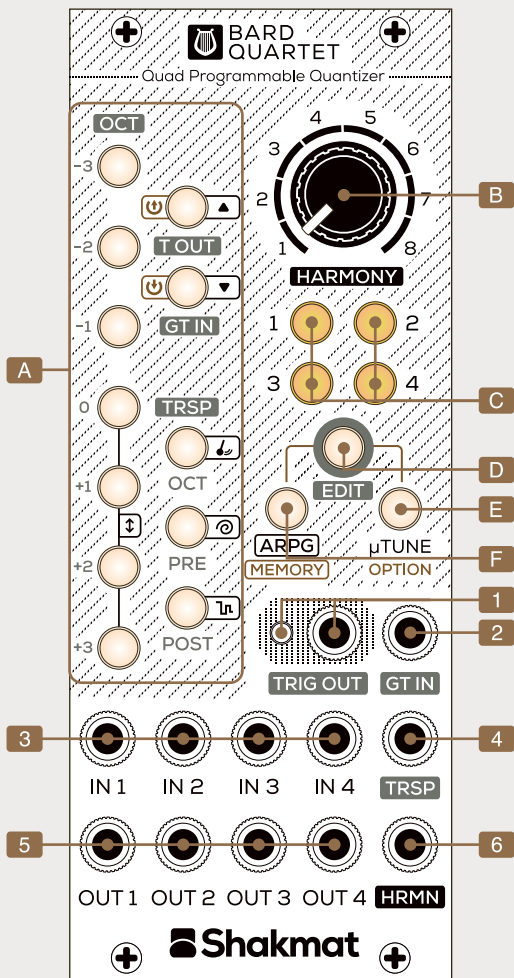
Introduction

The Bard Quartet composes and sings along with your complex harmonies! With its 4 channels and integrated keyboard, the Bard Quartet can control up to 4 different instruments which will play together as a harmonious quartet fed by your musical ideas. Even better: the potentiometer allows you to navigate through 8 customisable harmonic progressions, leading to the creation of entire songs!

The Bard Quartet can memorise up to 320 scales (4 channels, 8 harmonies, 10 memory slots). Furthermore it includes highly customisable Microtuning and Arpeggiator options, as well as three assignable inputs and outputs.

A	Keyboard buttons	1	Trigger output & LED
B	Harmony potentiometer	2	Gate input
C	Channel buttons	3	Channel CV inputs
D	Edit button	4	Transpose CV input
E	µTune / Option button	5	Channel CV outputs
F	ARPG / Memory button	6	Harmony CV input

Installation

The Bard Quartet requires a standard 2x5 pin eurorack power cable. Make sure the red stripe on the cable matches the -12V side of the Bard Quartet's power header.

Scales

The Keyboard buttons [A] are used to set a scale per channel. The button of the active note shines brighter than the other selected notes, providing a real-time note monitoring. The edited channel is selected using the Channel buttons [C].

Harmony

Once a scale has been set for each of the channels in use, turning the Harmony potentiometer [B] allows the repeat of the process for 8 different harmony locations. This leads to the creation of harmonic progressions, which can be the basis of song structures. Using the Harmony potentiometer, the different harmonies can be accessed very quickly.

> **In addition to Scale progressions, Harmony changes also have an effect in Edit settings, Arpg settings, µtuning and Channel groups.**

Grouping Channels

A useful feature is the ability to group up to 4 channels. Hold a Channel button [C] and press another channel button, the scale of the first channel is copied to the second one and editing the common scale applies to both channels. Grouped channels are indicated by their Channel LED's being simultaneously on. Any combination of groups can be created.

> **By default, only the Scale settings are shared, but the Options menu (see further) allows for more settings shared between grouped channels.**

Edit Menu

The Edit menu is accessed by pressing the Edit button [D]. This menu provides Octave switching, Trigger Out, Gate In and Transpose In capabilities per channel and per harmony. The Edit button is lit as long as the menu is active, press it again to exit the menu.
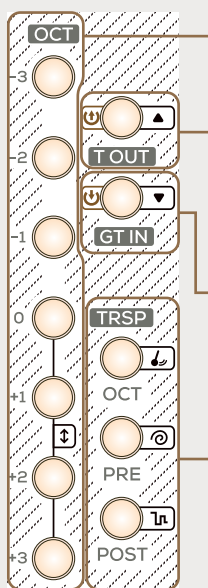
Octave

Transpose from -3 to +3 octaves.

Trigger Out

Channel assignment to the Trigger output [1] which delivers a trigger each time a note change is detected in an assigned channel.

Gate In

Channel assignment to the Gate input [2] which works as a track & hold.

Transpose mode

Channel assignment to the Transpose input [4] which can work as a pre-quantize, post-quantize or by octave transposer.

Arpeggiator Menu

Each channel can be turned into an arpeggiator instead of a quantizer. The channel will then react to triggers instead of voltage changes at the Channel's CV input [3]. The Arpeggiator menu is accessed by pressing the Arpg button [F]. The Arpg button is lit as long as the menu is active, press it again to exit the menu.

To turn a channel into an arpeggiator, press the corresponding Channel button [C] while holding the Arpg button [F] (Arpeggiator menu must be active). An arpeggiated channel is indicated by a blinking channel button. Turning a channel into an arpeggiator applies to all Harmony locations. The Arpeggiator menu also sets the Arpeggiator mode and Octave spread per channel and per harmony.

Arpeggiator Mode

Five arpeggiator modes are available :
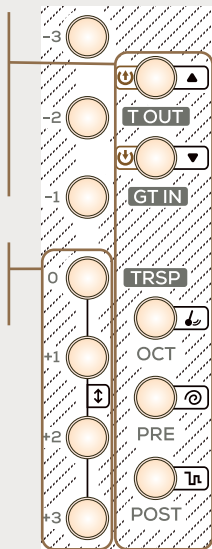
▲ Up   ⊚ Spiral

▼ Down   𝗅𝗅 Random

♩ Pendulum

Octave Spread

The octave range can be spread from one to four octaves.

+ **If a channel is set as an Arpeggiator, the Gate in option in the Edit menu allows for a third option (indicated by blinking): Reset in.**

Microtuning

IN TUNE

The Bard Quartet features microtuning and allows the user to detune each of the 12 equal temperament notes by a range of +/- 50 cents of a semitone. The Microtuning menu is accessed by pressing the µTune button **[E]**. The µ Tune button is lit as long as the menu is active, press it again to exit the menu.

For each channel and harmony, the note being detuned can be selected independently with the Keyboard buttons **[A]**. The detuning is performed with the Harmony potentiometer **[B]**. At noon, the note is in tune. Turning the potentiometer clockwise increases the note upwards to +50 cents, turning it counter clockwise detunes the note downwards up to -50 cents. A detuned note is indicated by a blinking keyboard button. The microtuning settings for all notes can be deleted for a particular channel and harmony by holding the µTune button for 4 seconds, and waiting for it to blink. When quitting the Microtuning menu, the Harmony potentiometer may be off position regarding the currently played harmony. To re-synchronize the potentiometer, pass by the current harmony value.

Memory Menu

The current settings (including the progressions into 8 harmonies) can be stored into 10 slots of non volatile memory. The Memory menu is accessed by pressing the Edit **[D]** and Arpg / Memory buttons **[F]** simultaneously. The Edit button is lit and the Arpg / Memory button is blinking. This menu includes the loading and saving of memory slots as well as Intra slot manipulations. To exit the Memory menu press the Arpg / Memory & Edit buttons.
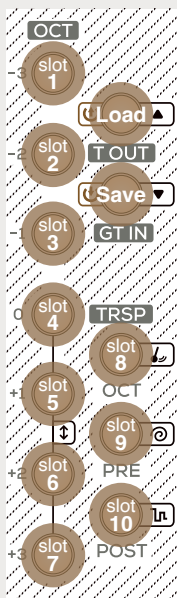
Loading & saving slots

Slots can be saved and loaded by using the Keyboard buttons [A]. The C# and D# buttons perform Load and Save operations, while the rest of the keyboard represents the 10 slots. When starting up, the module always loads the first slot. In order to load/save, press the load/save button, then press the target slot, and finally confirm the action by pressing the blinking load/save button.

Intra slot manipulation

Inside the current memory slot, that is the current state of the module, it is possible to copy and paste all contents of a particular Harmony into another Harmony of another channel. When a certain Harmony and channel are selected, copy/paste action is performed by holding the Arpg button [F], select the target Harmony and/or channel, then release the Arpg button.

Options

The Options menu is accessed by pressing the Edit [D] and µTune / Options buttons [E] simultaneously. The Edit button is lit while the µTune / Options button is blinking. The Options menu features different options related to channel grouping and Interactions, these settings apply to the current slot as a whole. To exit the Memory menu press the Edit & µTune / Options buttons.
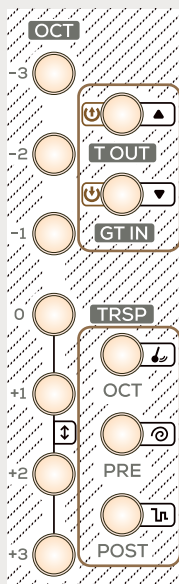
Channel Grouping Options

By default the grouping only involves Scales settings. It is however possible to also share Edit, Microtuning and Arpegiattor settings. Note that this option applies to all the channels.

• **ALL OFF** = Only scales are copied.

• **C# IS ON** = Scales and Edit parameters are copied.

• **D# IN IS ON** = Scales, Edit, Microtuning and arpeggiator parameters are copied.

Channel Interaction Options

This option allows the interaction of channels 2, 3 and 4 when 0V is detected at the CV Input. This option applies per channel. There are 3 possible interactions:

• **F# IS ON** = No channel interaction

• **G# IS ON** = Normalisation
When 0V is detected at its CV input, the channel will follow the input of the previous channel.

• **A# IS ON** = Shift Register
To activate this function for a certain channel, the Gate in option (in the Edit menu) must be activated. Whenever a trigger is received at the Gate input and 0V is detected at its CV input, this channel will follow the input of the previous channel. This function thus acts as a shift register.

Advanced Features

Applying Settings to All Harmonies of a Channel

When settings are selected in the Edit or Arpeggiator menu, they only apply to an individual harmony of a certain channel. It is however possible to generalise a setting to all the harmonies of a certain channel by holding the Channel button before selecting a setting on the keyboard buttons.

Harmony Potentiometer Freeze

It is possible to edit the Scale, Edit and Arpeggiator settings of a certain harmony while still playing another harmony. If the μTune button is pressed and held, the module dissociates the Harmony potentiometer from the harmony that is being played. In that way, the Harmony potentiometer can navigate freely across the harmonies to edit them. When the μTune button is released, the Harmony potentiometer is re-associated to the currently played harmony. This feature also allows to easily navigate towards non-adjacent harmonies.

Output norm

The Bard Quartet not only controls Eurorack instruments using the V/Oct standard, it can also control Hz/V and 1.2V/Oct instruments. To change the Output norm of a specific channel, enter the Microtuning menu then hold the μTune button while pressing on the Channel button. The output norm is indicated by the blinking pattern of the Channel button :

- **No blinking** = V/Oct
- **Simple blinking** = Hz/V (Korg,Yamaha)
- **Triple Blinking** = 1.2V/Oct (Buchla)

Factory Tables

• **C** = Blank slot

The next 6 slots have different settings per channel and are intended to be used for evolutive harmonies:

• **D** = Diatonic major degrees
• **E** = Harmonic minor degrees
• **F** = Melodic minor degrees
• **G** = Circle of fifth
• **A** = Chromatic progression
• **B** = Progression inspired by Messiaen mode 2

The last 3 slots are banks of scales and microtuning, the same settings apply on every channel:

• **F#** = Bank of ionian, dorian, phrygian, lydian, myxolydian, æolian, locrian and super locrian scales

• **G#** = Bank of whole tone, diminished, blues, minor pentatonic, major pentatonic, Arabic, Hungarian and Gypsy scales.

• **A#** = Bank of different microtuned scales : just intonation, gamelan slendro, samelan pelog, Bayati, Hijaz, Nawahand, Bastanikar and broken piano.

Factory Reset

To restore the factory memory, hold the Arpg button while powering up the module, then press the µTune button to apply. All the buttons are blinking until the factory memory is restored.

New Features
from 1.1 firmware

Editing Scales
For All Harmonies

To add or remove a note to all harmonies of a specific channel, hold the channel's button while you select or deselect the note.

Sample & Hold

It is possible to choose between two different behaviors for the Gate input. In the Option menu, press the C button on the keyboard to switch between Track & Hold (default, light off) and Sample & Hold (light on). In Sample & Hold, the Gate input reacts to rising edges.

Tuning Mode

In Tuning Mode, the Bard Quartet outputs a precise 0v, which helps you tune your VCOs.

To activate this mode, hold the Edit button for 2 seconds while in the Scale edit menu. The Edit and keyboard C buttons start blinking quickly and all channel buttons turn on.
To exit, press the Edit button.

Root Note

You can transpose a scale by semitones, per channel, per harmony. To enter this Root Note edit menu, press the µTune and ARPG buttons together while in the Scale edit menu. The buttons start blinking alternatively, which means you can set the root using the keyboard buttons.

To apply the same root note on all harmonies of a channel, hold the channel's button while setting the root note. Grouped channels will have the same root note transposition.

To exit the Root Note edit menu, press the µTune and ARPG buttons together.

Expanding

The new v1.1 firmware also works on the Bard Quartet expander.

Specifications

Size	Channel CV inputs
10 HP	-3 to +7V
Depth	**Harmony CV input**
29 mm	-5 to +5V
Current Draw	**Transpose CV input**
60 mA @ +12V	-5 to +5V
10 mA @ -12V	**CV outputs**
	-3 to +7V
	Gate Input
	0 to +5V
	Trigger Output
	0 to +5V