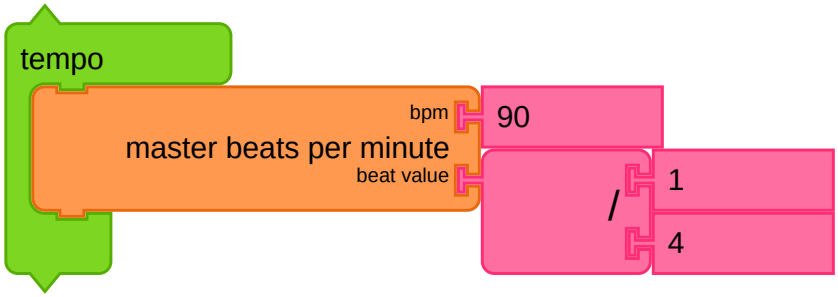
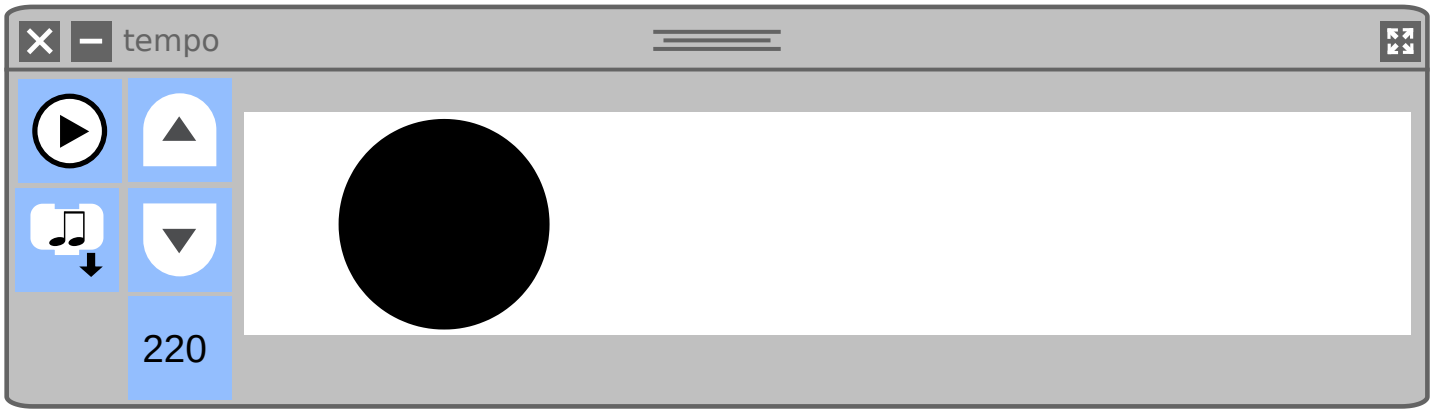
4.9 Changing Tempo

The *Tempo* block is used to launch a widget that enables the user to visualize Tempo, defined in beats per minute (BPM). When the *Tempo* block is clicked, the *Tempo* widget is initialized.

The *Master Beats per Minute* block contained in the clamp of the *Tempo* block sets the initial tempo used by the widget. This determines the speed at which the ball in the widget moves back and forth. If BPM is `60`, then it will take one second for the ball to move across the widget. A round-trip would take two seconds.



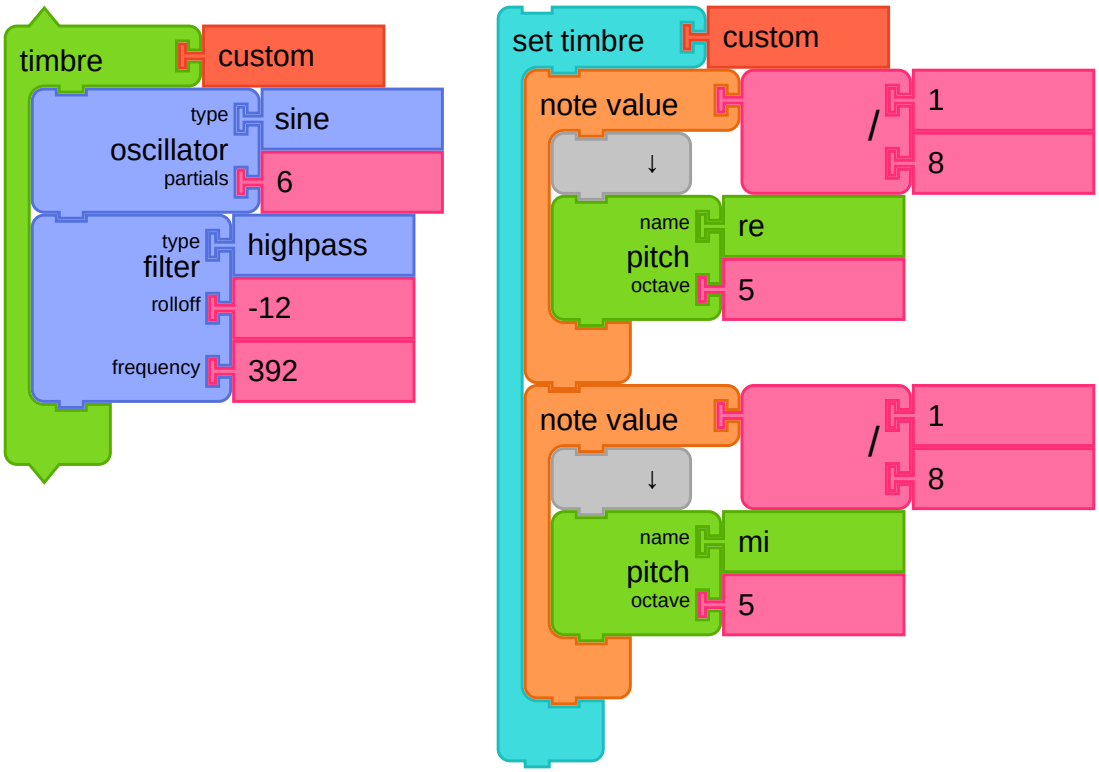
The top row of the widget holds the *Play/pause* button, the *Speed up* and *Slow down* buttons, and an input field for updating the Tempo.



You can also update the tempo by clicking twice in spaced succession in the widget: the new beats per minute (BPM) is determined as the time between the two clicks. For example, if there is `1/2` second between clicks, the new BPM will be set as `120`.

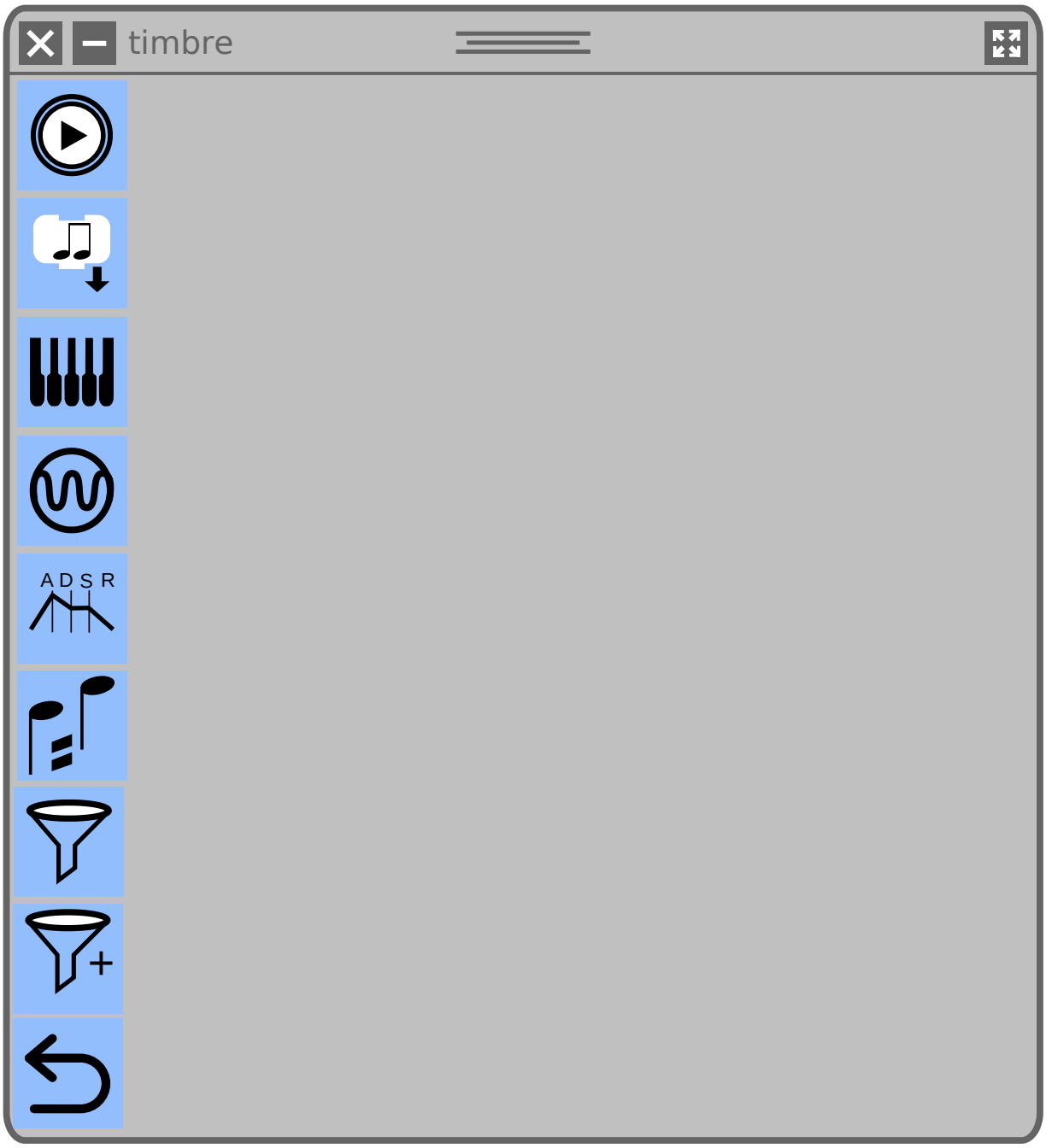
4.10 Custom Timbres

While Music Blocks comes with many built-in instruments, it is also possible to create custom timbres with unique sound qualities.



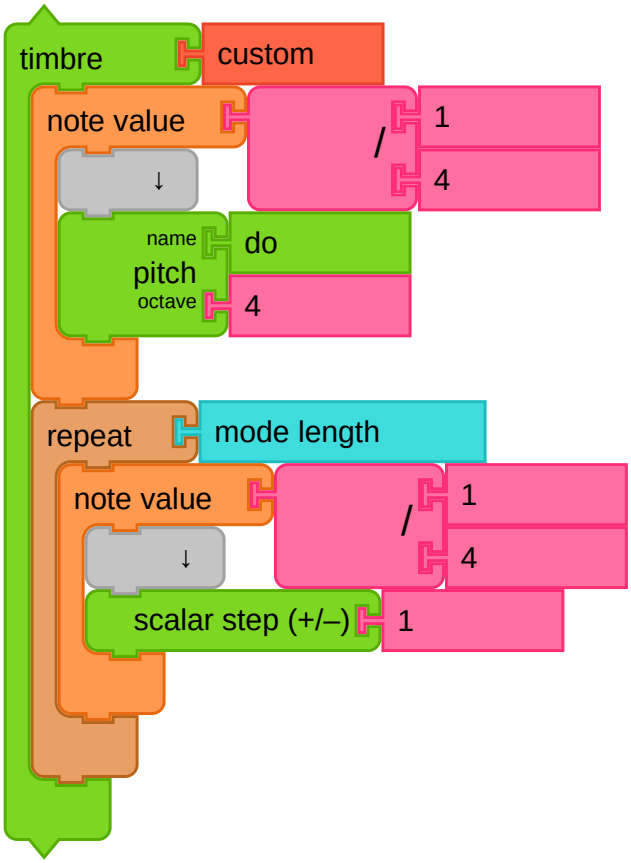
The *Timbre* block can be used to launch the *Timbre* widget, which lets you add synthesizers, oscillators, effects, and filters to create a custom timbre, which can be used in your Music Blocks programs.

The name of the custom timbre is defined by the argument passed to the block (by default, `custom`). This name is passed to the *Set timbre* block in order to use your custom timbre.



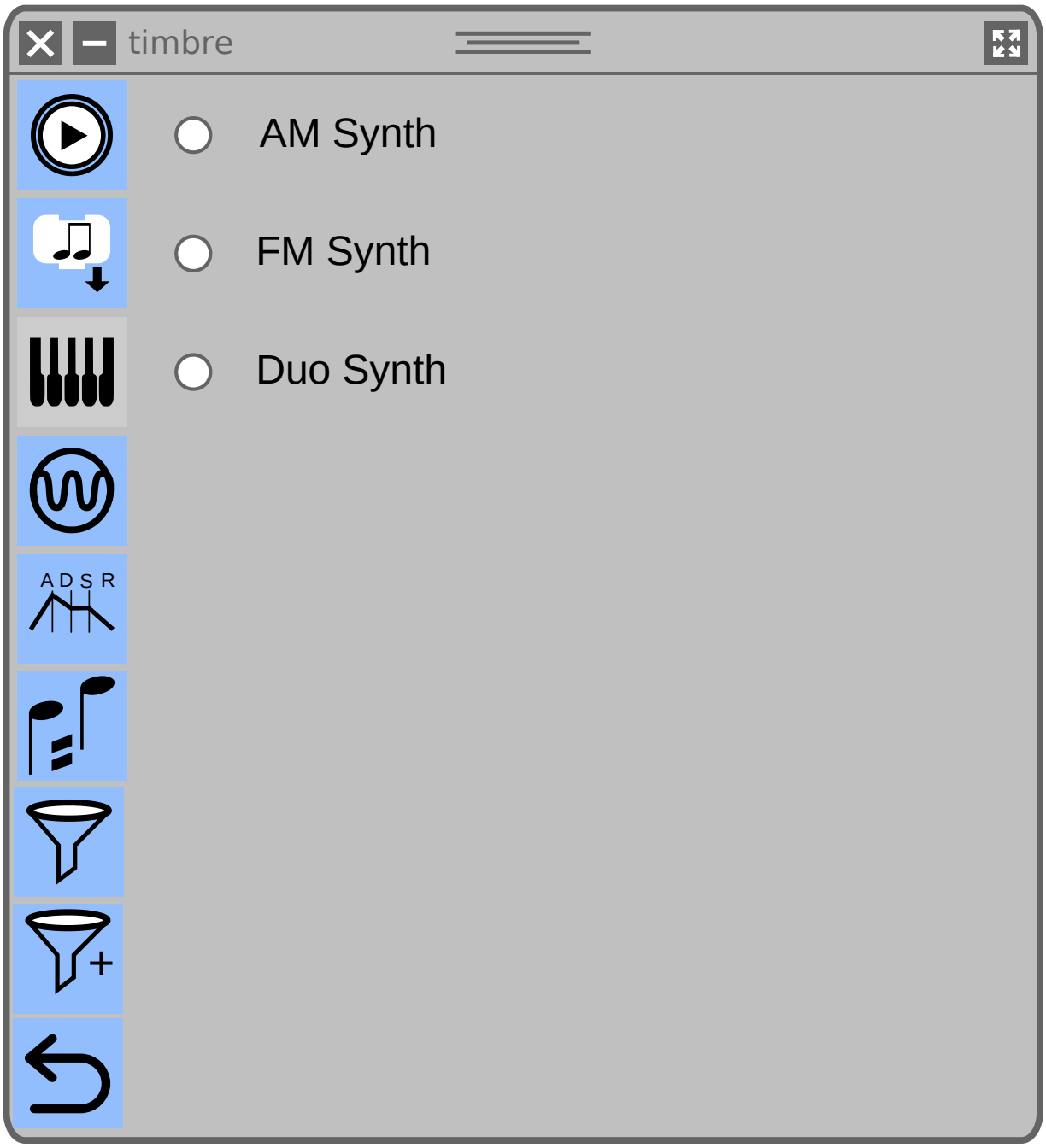
The *Timbre* widget has a number of different panels, each of which is used to set the parameters of the components that define your custom timbre.

7 The *Play* button, which lets you test the sound quality of your custom timbre. By default, it will play `Sol`, `Mi`, `Sol` using the combination of filters you define.

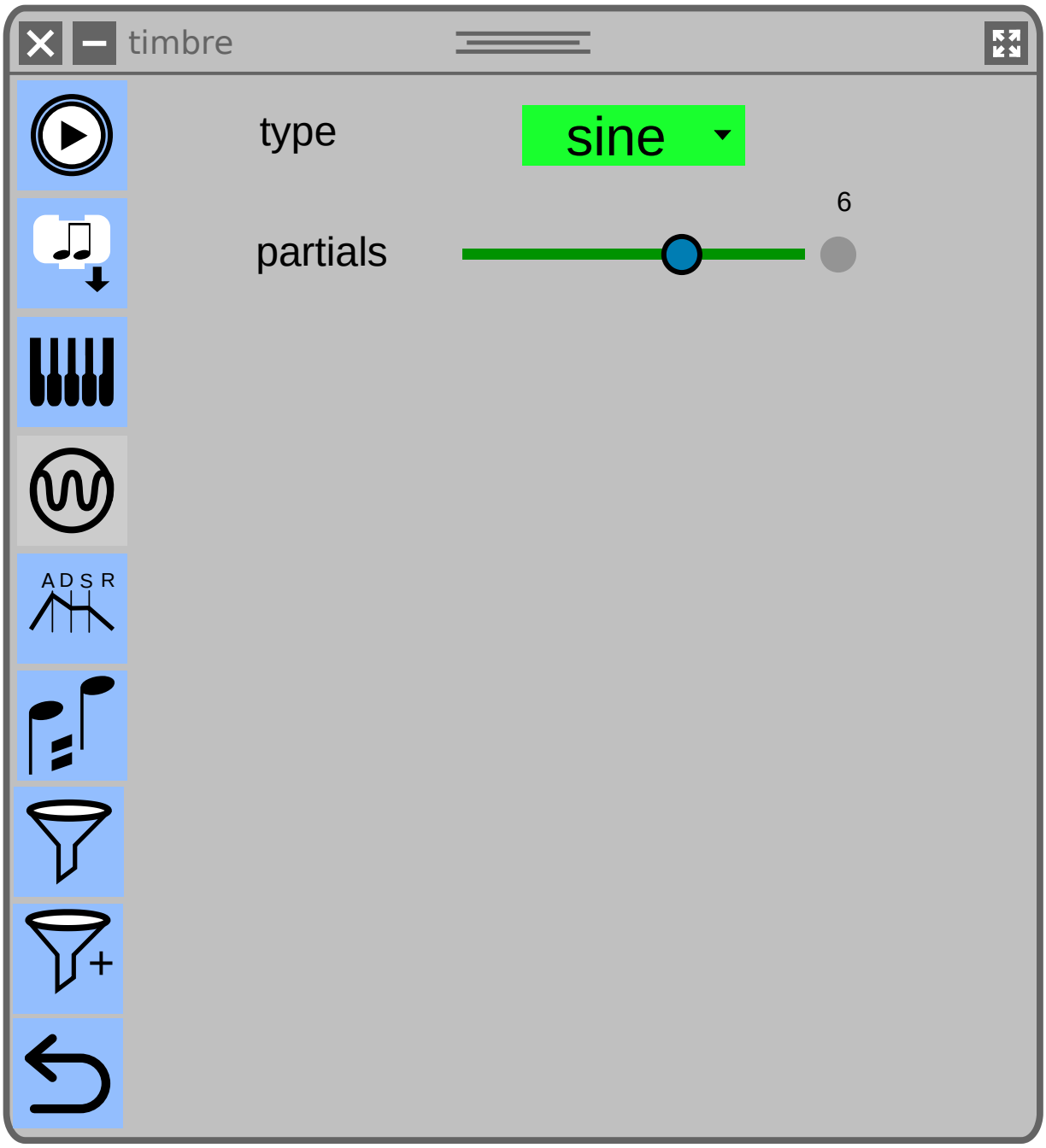


You can also put notes in the *Timbre* block to use for testing your sound. In the example above, a scale will be used for the test.

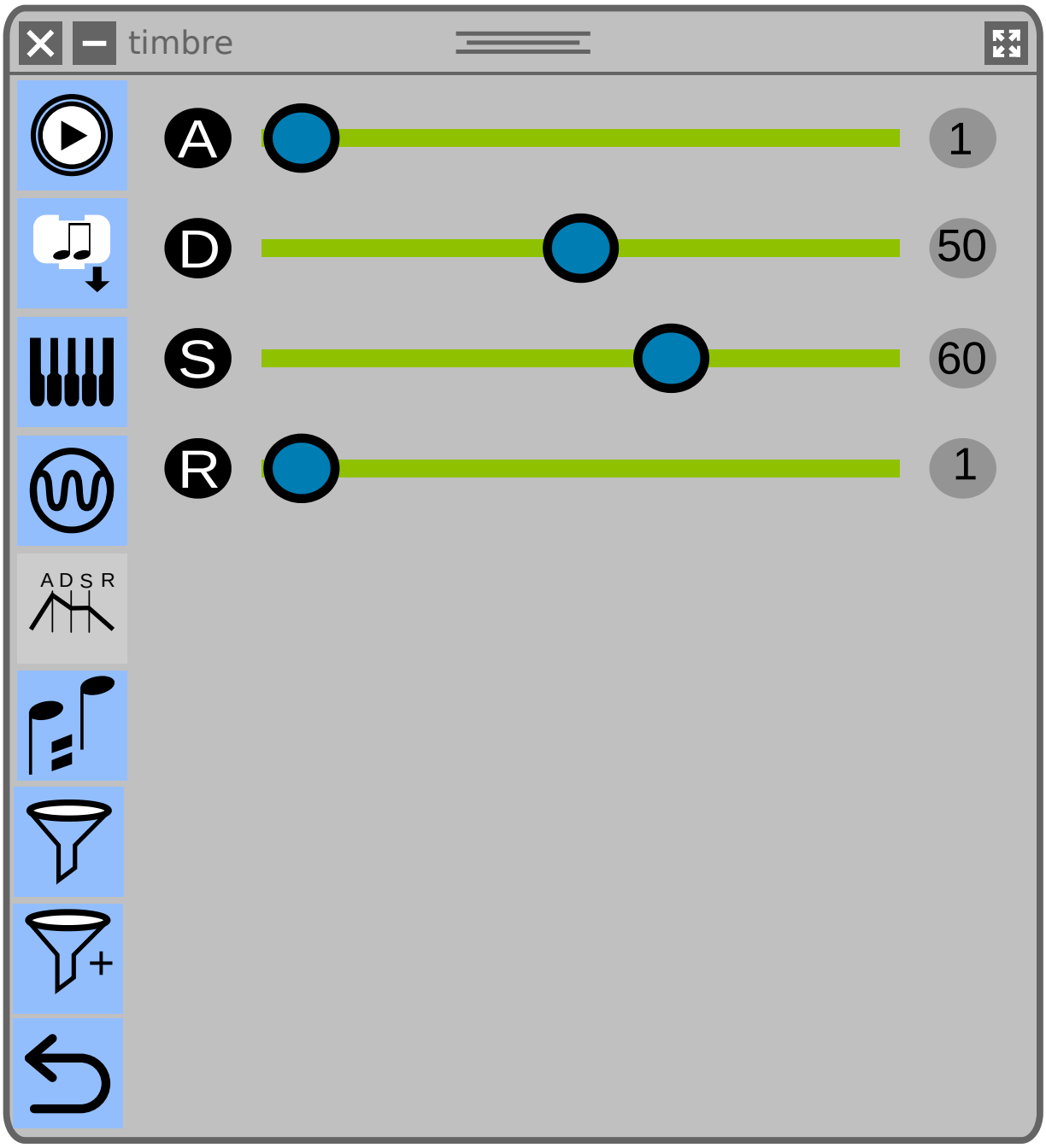
8 The *Save* button, which will save your custom timbre for use in your program.



9 The *Synth* button, which lets you choose between an AM synth, a PM synth, or a Duo synth.

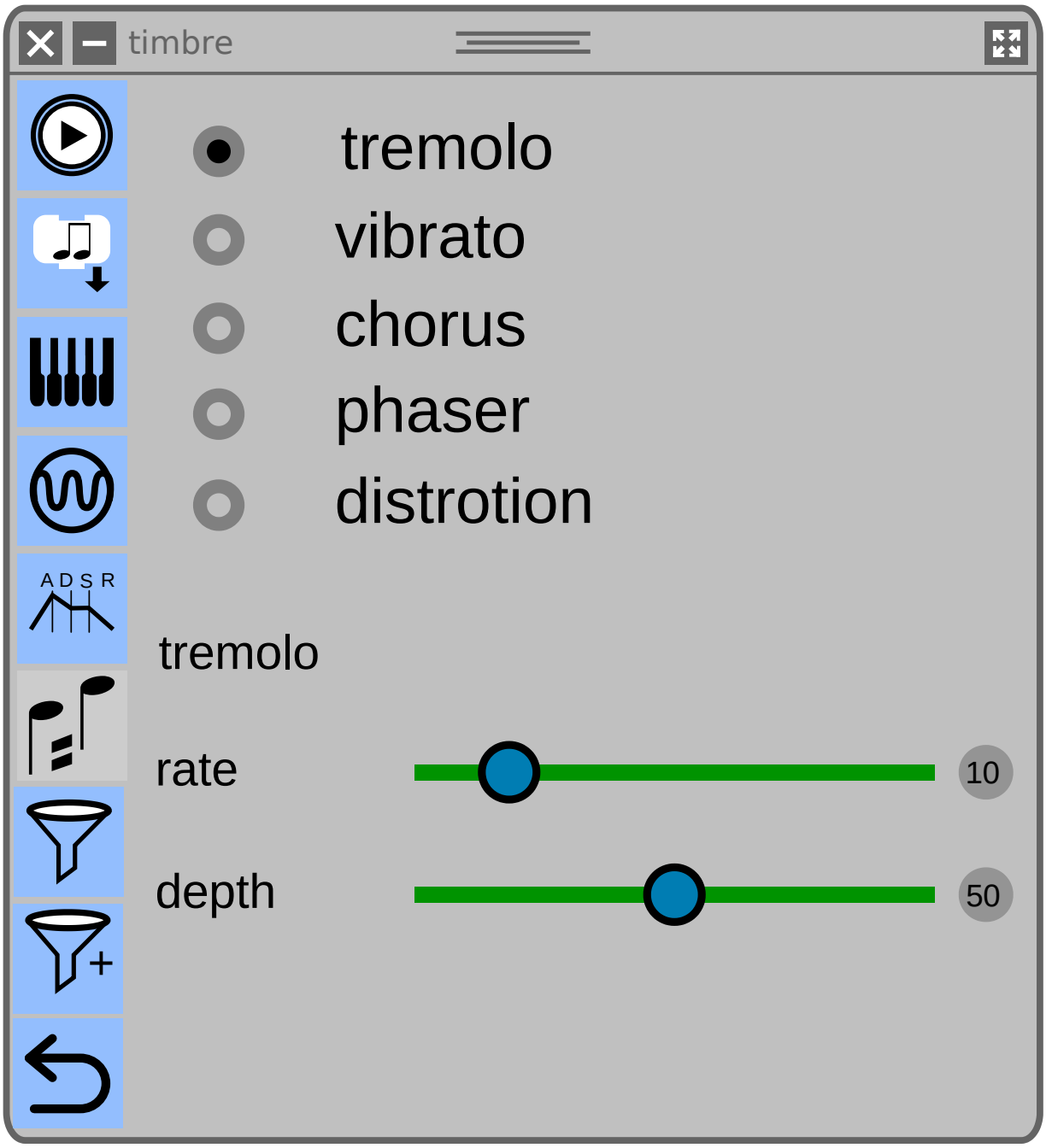


10 The *Oscillator* button, which lets you choose between a sine wave, square wave, triangle wave, or sawtooth wave. You can also change the number of partials.

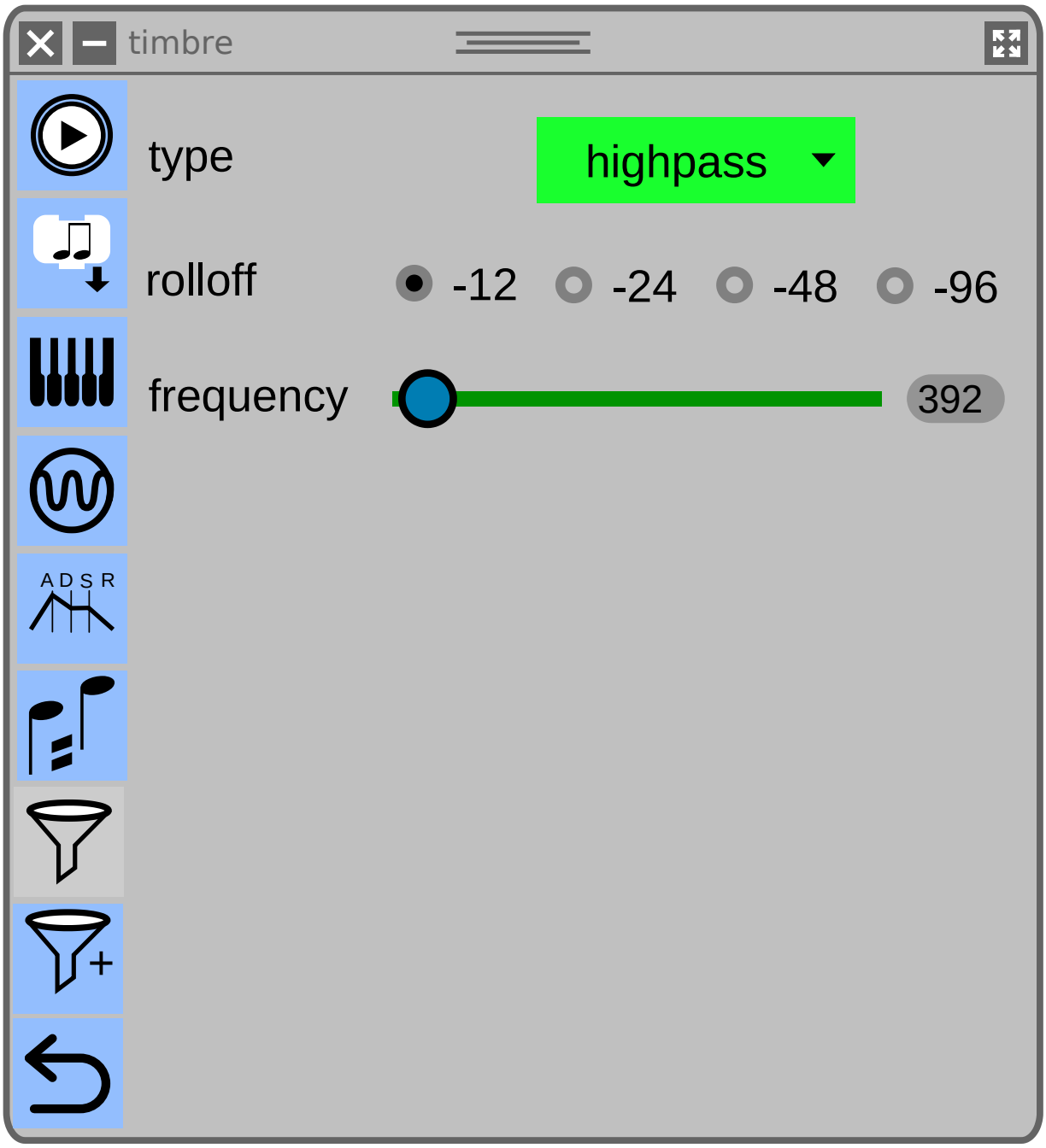


11 The *Envelope* button, which lets you change the shape of the sound envelope, with controls for attack, decay, sustain, and release.


timbre
tremolo
vibrato
chorus
phaser
distrotion
ADSR



12 The *Effects* button, which lets you add effects to your custom timbre: tremelo, vibrato, chorus, phaser, and distortion. When an effect is selected, additional controls will appear in the widget.



13
The *Filter* button, which lets you choose between a number of different filter types.

14
The *Add filter* button, which lets you add addition filters to your custom timbre.

15
The *Undo* button.

As you add synthesizers, effects, and filters with the widget, blocks corresponding to your choices are added to the *Timbre* block. This lets you reopen the widget to fine-tune your custom timbre.