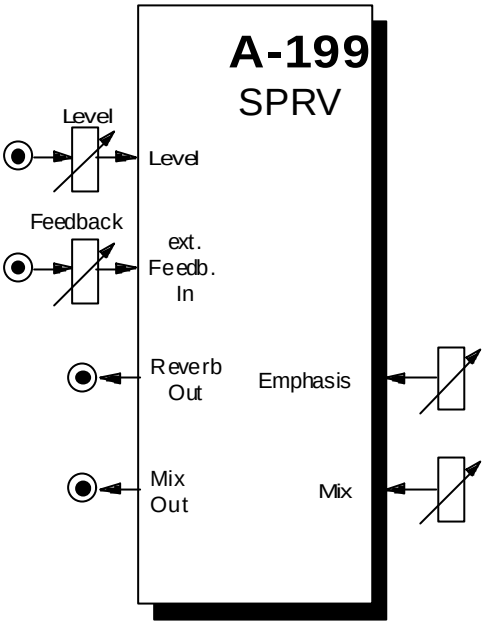


1. Introduction

Module A-199 is a spring reverb module that simulates the reverb effect by means of 3 spiral springs. The *3-spring system* used in the A-199 ensures a "dense" reverb because of the different properties of the three springs. The A-199 implies some special features that are not self-evident for spring reverb units:

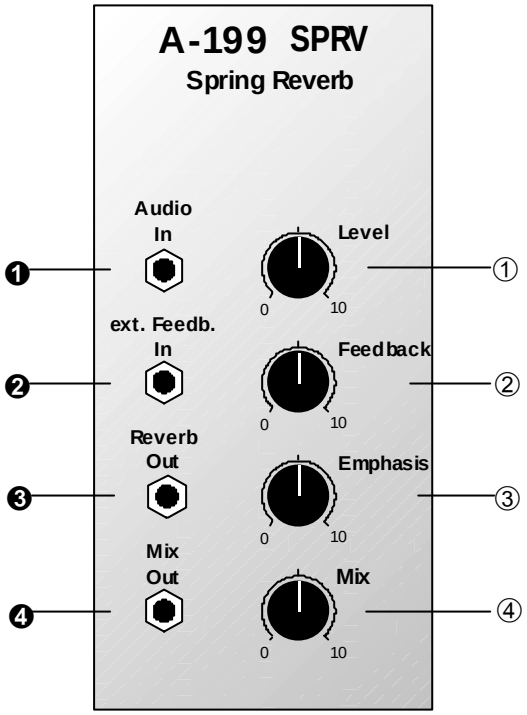
The reverb signal can be fed back to the input using the *Feedback* control. Even *self-oscillation* of the springs similiar to the self-oscillation of filters is available. The feedback loop can lead even via external modules like VCA, VCF, phaser, frequency shifter, vocoder, distortion/waveshaper, ring modulator and others.

Another feature is the *Emphasis* control. This enables the adjustment of the accentuation of middle frequencies (around ~ 2kHz).

With the *Mix* control the relation between original and reverb signal appearing at the mix output is adjusted.

Using all these features very extreme and unusual effects can be generated with the A-199.

2. SPRV - Overview



Controls:

1 **Level** : Attenuator for the the audio input signal at input !

2 **Feedback** : Manual feedback control, resp. attenuator for external feedback signal at socket "

3 **Emphasis** : Control for accentuation of middle frequencies ~ 2kHz

4 **Mix** : Control for setting the relation between original and reverb signal at mix output $

In- / Outputs:

! **Audio In** : Audio input

" **ext. Feedback In** : Input for external feedback

§ **Reverb Out** : Audio output pure reverb signal

$ **Mix Out** : Mix output containing both original and reverb signal (relation is adjusted with control 4)

3. Controls

1 Level

Attenuator 1 controls the **level of the input signal** fed into socket !.

2 Feedback

Knob 2 controls the **share of the reverb signal** that is fed back to the input. Feedback can be adjusted as far as **self-oscillation** (as for some filter modules of A-100, e.g. A-120/121/122/123). The self-oscillation behaviour depends upon the properties of the spring-system.

H If external feedback is used this control acts as an attenuator for the external feedback signal. In this case the reverb output § is passed through one or more A-100 modules and then fed back to socket " (refer to chapter 5: user examples).

3 Emphasis

This control enables the adjustment of the **accentuation of middle frequencies** (around ~ 2kHz, see fig. 1). This gives more “pressure” or “presence” to the reverb effect.

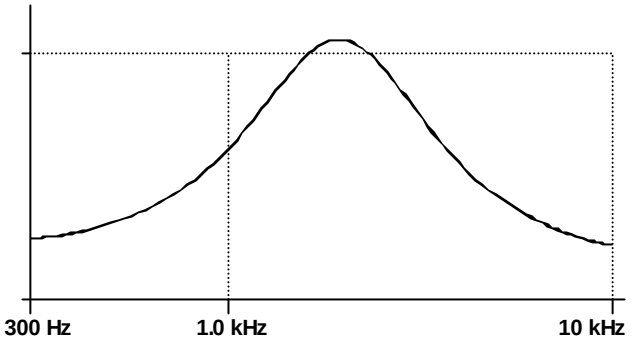


Fig. 1: Effect of emphasis function

4 Mix

This control adjusts the **relation between original and reverb signal** appearing at output $.

Pay attention to the notes concerning the position and assembly of the reverb system at the end of this manual.

4. In- / Outputs

! Audio In

The audio signal to be provided with the reverb effect is fed into **audio input** !.

" ext. Feedback In

If you want to make use of the **external feedback** feature socket " is used as input for the feedback signal (refer to chapter 5: user examples).

H The feedback input " is a normalled socket. This means that the reverb output § is used as feedback signal unless a signal is patched into socket ". As soon as a plug is inserted into socket " the internal feedback path is interrupted. Control 2 is the attenuator for the internal or external feedback signal.

§ Reverb Out

At this output the pure **reverb signal** is available.

$ Mix Out

At this output the **mix signal** containing original and reverb signal is available (relation is adjusted with 4).

5. User examples

Apart from the evident application - i.e. reverb simulation - the module can be used for timbre modification as spring reverb systems show a very characteristic sound.

The reasons for this behaviour are (insufficient) mechanical properties of the springs like signal delays, audio resonances, limited frequency range, acoustic feedback behaviour, sensitivity to mechanical shocks and others. But just these features make the spring reverb unmistakable.

Already the controls **Feedback** and **Emphasis** allow a lot of very interesting sound modifications and unusual reverb effects.

Fig. 2 shows the realization of a **frequency-selective reverb**. By means of a filter bank (A-128) certain frequencies of the original signal are emphasized or suppressed before the signal is fed into the spring reverb module A-199. Mixing the original signal with the frequency-selective reverb signal generates very interesting sound effects.

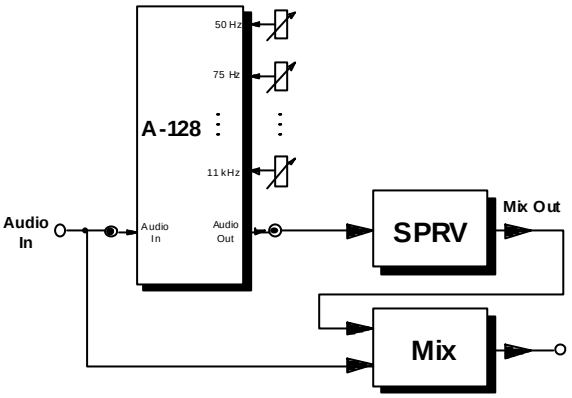


Fig. 2: Frequency-selective reverb

Another field of activity results from the **external feedback** feature (see fig. 3). Any sound-processing module or combination of such modules can be inserted into the feedback path of the spring reverb module (represented by “XYZ” in fig. 3). Examples are VCA, any filter, phaser, frequency shifter, distortion/waveshaper, ring-modulator, vocoder, audio divider and so on.

A VCA in the feedback path e.g. leads to a voltage controlled (normal) feedback. Filters or filterbanks in the feedback path modify the spectral behaviour of the reverb effect (different to the frequency-selective reverb described shortly). Very unusual sounds result from ringmodulators, frequency shifters or vocoders inserted into the feedback path of the spring reverb module.

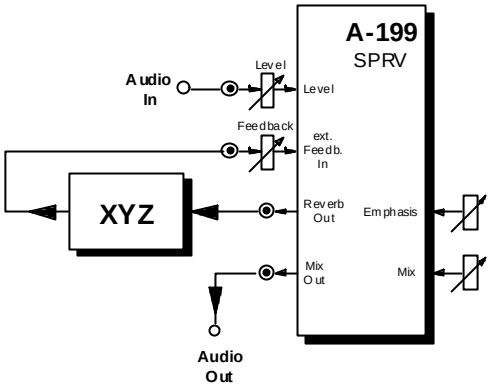


Fig. 3: External feedback

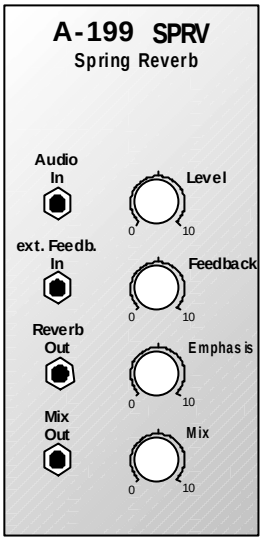
6. Patch-Sheet

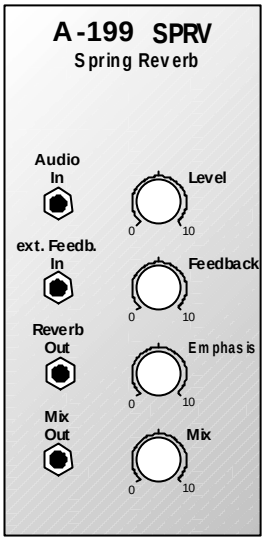
The following diagrams of the module can help you recall your own **Patches**. They're designed so that a complete 19" rack of modules will fit onto an A4 sheet of paper.

Photocopy this page, and cut out the pictures of this and your other modules. You can then stick them onto another piece of paper, and create a diagram of your own system.

Make multiple copies of your composite diagram, and use them for remembering good patches and set-ups.

P
- Draw in patchleads with colored pens.
- Draw or write control settings in the little white circles.





7. Position and assembly of the reverb system

The reverb system used in the A-199 consists in principle of a transmitter (“loudspeaker”) and a receiver (“microphone”) that are connected via a 3-spring system. The movement of the “loudspeaker” is transmitted to the “microphone” by the springs and generate in this way the reverb effect.

The receiver (“microphone”) is very sensitive to magnetic fields and has to be mounted therefore in a position with minimal interferences caused mainly by the transformer of the A-100 power supply mounted at the rear panel of the frame.

For this reason the black reverb system is connected with 2 RCA phono cables to the A-199 module. Pay attention to the colors if you disconnect the reverb system: red jack plug into red socket (labelled INPUT). The fixed mechanical connection between pc board and reverb system used in the first A-199 modules did not stand the test.

Therefore one has to find out the best position for the reverb system creating a minimum of hum noise. As a clue the reverb system should be placed as far as possible from the transformer of the A-100 power supply (normally mounted at the lower right side on the rear panel). Normally the top left position in the frame is a good one but the rotation of the reverb system affects the hum noise too. The best position depends upon many factors and has to be found out by trial and error. It is also possible to mount the reverb system outside the A-100 frame. But we recommend this only for fixed installations of the A-100 frame.

As soon as the best position is discovered the reverb system is fixed with double-face self-adhesive tape or screws and nuts at this position. One may use the left, top, or rear panel of the A-100 frame to mount the reverb system. If screws are used 2 of them are sufficient. If necessary 2 holes have to be drilled into one of the panels. If the top or bottom cover is used the holes in the covers fit to the holes of the reverb system.

Additonally the springs of the reverb system are protected during transport with foamed plastic material. One has to remove this transportation protection before installing the module. In case that the springs stick together one has to separate them very carefully. Otherwise the module will not work correct.