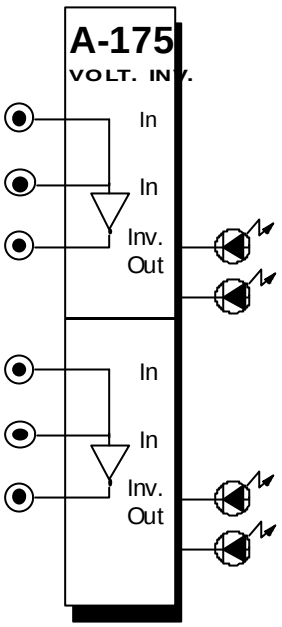
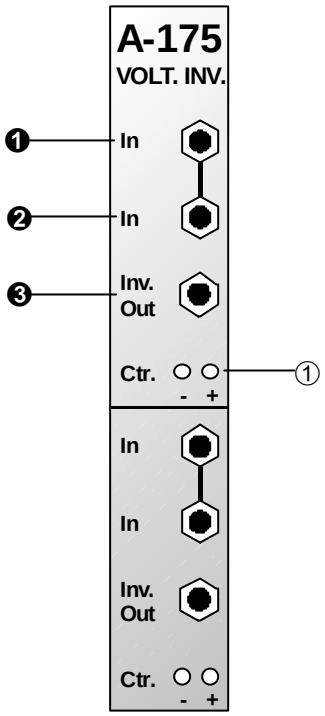


1. Introduction

Module **A-175 (Dual Voltage Inverter)** is exactly what it says it is: two identical inverters, which will take a voltage and output it in an inverted form - so that an input of +5 V will be output as -5 V, an input of -2 V will be output as +2 V, and so on.

Two **LEDs** give a visual indication of the (positive or negative) output signal.

2. Overview



Indicators

1 **LEDs** : Visual indicators of the state of the output voltage (positive or negative)

In- / Outputs

! **In** : Voltage input, linked to input "

" **In** : Voltage input, linked to input !

§ **Inv. Out** : Inverted voltage output

3. Indicators

1 LEDs

Visual indicators of the state of the output voltage (positive or negative) at socket §.

4. In- / Outputs

! In • " In

Sockets ! and " are the internally linked **inputs** for the A-175. This is where you patch in the signal you want to invert.

P Since in practice you very often need the original signal as well as its inversion (see user examples), you can use the second socket as a mini-multiple.

§ Inv. Out

The inverted voltage is output at socket §.

5. User examples

Panning

Fig. 1 shows a typical patch to create **Panning** - the shifting of a sound's position in the stereo picture.

The input signal is simultaneously sent to two **linear** VCAs, whose outputs are sent one to the left (Out_L) and one to the right (Out_R) stereo channel. Both VCAs are being modulated by the same slow LFO. One of the VCAs has the LFO voltage patched straight into it, but the other has an A-175 patched in line first, so receives the LFO voltage inverted.

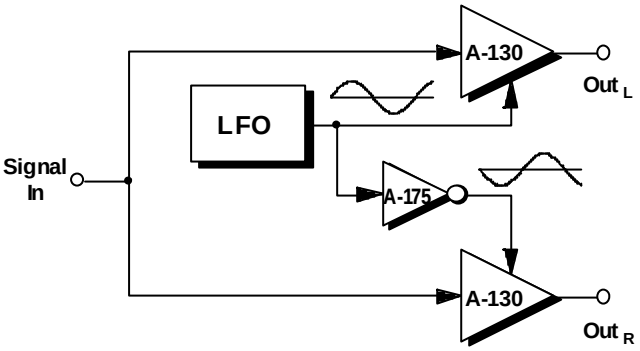


Fig. 1: Panning

The changing state of the LFO voltages results in corresponding changes in the perceived position of the sound in the stereo picture.

H It's important to set the **gain parameter** on both VCAs to **roughly halfway.**

P Interesting types of panning can result if you use a different modulator (for instance, AM, FM, Random Voltage, S&H).

If you replace the two VCAs with two A-125 VCPs, the result is a sort of rotating stereo phasing.

Mirroring a scale or arpeggio

The patch in Fig. 2 shows a way of using two VCOs to create a mirror-image of a series of notes.

The pitch CV is patched directly to VCO 1, but goes through an A-175 and is inverted before it gets to VCO 2.

H The relative pitch of VCO 2 can be controlled with an attenuator.

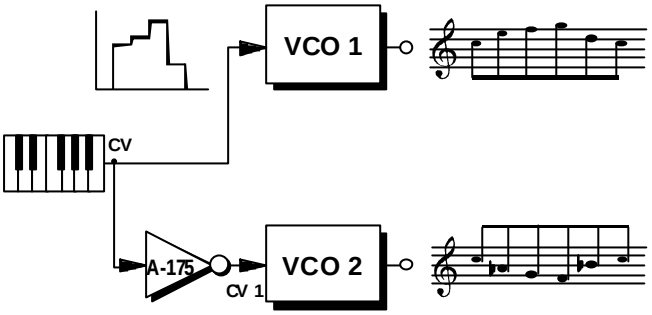


Fig. 2: Mirroring a series of notes

AM with control of timbre

The example in Fig. 3 shows amplitude modulation with timbre control.

The frequencies of both the carrier VCO (VCO 1) and the modulator VCO (VCO 2) are in the audio range. The pitch CV from the keyboard is patched via an A-175, and so is inverted before it controls the modulation amount (VCA 2). The result is that the sideband harmonic distortion is stronger, the lower down the keyboard you go (see also the user examples in the A-130/1 manual).

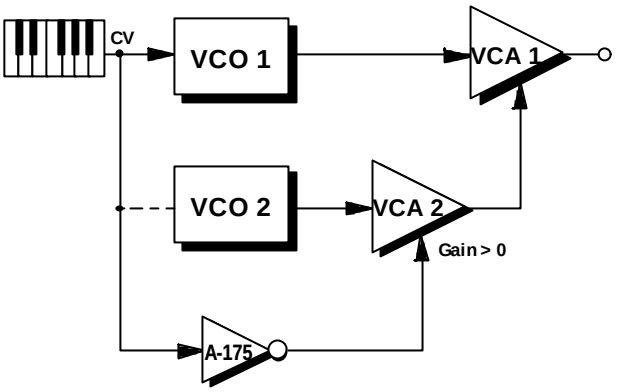


Fig. 3: AM with timbre control

P As an alternative, a free-running VCO 2 can be used to supply the pitch CV.

You can expand this patch by adding an A-120 VCF after VCA 1, and controlling its cut-off frequency with the inverted pitch voltage. This has the effect of filtering out more of the sidebands in higher notes.

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.