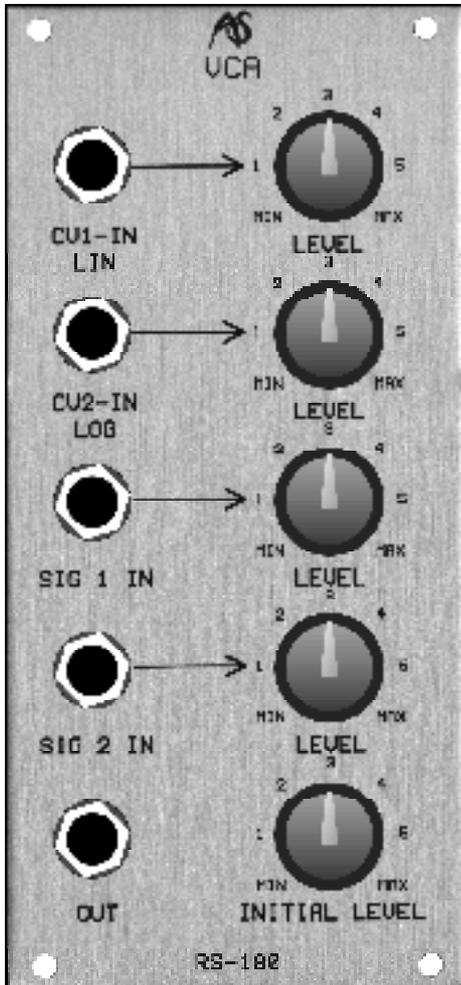


# RS180

## LOGARITHMIC AND LINEAR VCA



### INTRODUCTION

Amplifiers have a simple job - they amplify or attenuate the signals presented to them. Voltage controlled amplifiers (VCAs) are more sophisticated... they allow you to control the amount of amplification or attenuation by applying a voltage to a CV input. VCAs exist in every synthesiser that can shape a sound. You may think that it's the envelope that is, for example, changing the volume, but it isn't. The envelope is producing a CV that, when applied to the VCA, causes it to modify the signal passing through it. The VCA is one of the fundamental modules that allow us to make sounds develop over time.

VCAs need not be restricted to amplifying audio signals. Other configurations include modulating a VCA using a Low Frequency Oscillator to produce the effect known as tremolo. In sophisticated instruments, the speed and depth of the LFO can themselves be controlled by a VCA, so that the rate and intensity of the tremolo changes in time too.

### IN USE

#### CV Inputs

The RS180 offers dual CV inputs. CV1-IN LIN responds linearly to incoming CVs, while the CV2-IN LOG input responds logarithmically. Traditional wisdom suggests that linear CV inputs are most useful for LFOs, whereas you should use the logarithmic response for envelopes. There is some basis for this, but you must remember that any signals can be presented to the CV inputs. Furthermore, you can use both CV inputs simultaneously, thus creating complex VCA responses.

#### Initial Level

The INITIAL LEVEL does what it says: with no CVs applied to either CV input, it determines the gain of the VCA. With the INITIAL LEVEL set to MAX and with no negative CVs applied to the CV inputs, the RS180 will pass signals with no changes in amplitude. At the other extreme, with the INITIAL LEVEL set to MIN and with no positive CVs applied to the CV inputs, the RS180 will pass no signals whatsoever.

If CVs fluctuating around 0V are presented to the CV inputs, the VCA gain will be modulated around the INITIAL LEVEL.

#### Inputs and Outputs

The VCA has two signal inputs: SIG 1 IN and SIG 2 IN, each with an associated LEVEL control. (The RS180 incorporates a mixer so that the signals presented to these can be treated simultaneously.) The inputs accept both audio signals and CVs in the range  $\pm 10v$ . The LEVEL controls offer unity gain in the fully clockwise position, and completely attenuate the signal at their anticlockwise extreme.

There is a single output that carries a signal in the range  $\pm 10v$ .