



## CL1MK2

Thank you for purchasing the Vintage Design CL1MK2. The Vintage Design products are assembled by hand in Sweden. The CL1MK2 utilizes a 100% discrete (no IC's!) transistor circuit with high quality components like Carnhill (St'Ives) transformers, ELMA switches and Sifam meters.

The common way to construct a compressor / limiter is to use a FET, VCA or optocoupler as the gaincontrol element. A different way is (was) to use diodes for this purpose and this is a method that a few European manufacturers used some decades ago! Like BBC, EMI, Neve & Siemens.

The combination of diodes and single ended class A circuitry offers a warm and musical tone with a pleasurable and smooth distortion.

### **The design**

CL1MK2 is based around the signalpath found in the old 2254, combined with the sidechain circuits from the 2264. The 2264's signalpath was a class AB design.

If the CL1MK2 is not in bypass mode (thru bypass), the signal always passes through a line input transformer, a diodebridge (the gaincontrol element), a mic transformer, a gainstage and a single-ended transformer balanced class A output stage. These three transformers and the outputstages itself adds alot of character to the sound.

The signals that feeds the sidechains is at different levels so both sidechain circuits had to be modified to work in this combination.

CL1MK2 uses two separate sidechains for compression and limiting. Both signals are then combined to feed the diodebridge and the meter driver.

The compressor sidechain receives it's signal before the gain make-up stage so the gainmake-up level settings won't affect the compressor settings.

The limiter circuit receives it's signal from the same point that feeds the output transformer. The limiter circuit is acting like a brickwall limiter so any peaks above the limiter threshold is limited.

A few new functions have been added to the MK2 model!

1. A separate attack control for the compressor and more attack times for the limiter section.
2. A highpass filter in the compressor sidechain, the filter is a passiv filter with 6dB / octave slope.
3. More recovery times added to both compressor and limiter sections.

## The controls.

### Compressor

**Threshold switch.** with 2 dB steps.

**Ratio.** 1.5:1 / 2:1 / 3:1 / 4:1 / 6:1.

**Attack.** 0,5mS\* / 1mS\* / 2mS\* / 3mS / 6mS\* / 12mS\* / 25ms\* / 50mS\*

**Recovery time.** 25mS\* / 50mS\* / 100mS / 400mS / 800mS / 1.5S / Auto1 / Auto2.

**Make-up gain.** 0-20dB.

**Compressor in/out.** Deactivates the compressor sidechain and the make-up gaincontrol.

**High pass filter\*.** Off / 50Hz / 100Hz / 7kHz, All with 6dB / octave slope

### Limiters

**Threshold switch,** with 0.5dB steps.

**Recovery.** 25mS\* / 50mS\* / 100mS / 200mS / 400mS / 800mS / 1.5S / Auto1 / Auto2

**Attack.** 0,5mS\* / 1mS\* / 2mS / 4mS / 8mS\* / 16mS\* / 32mS\*

**Limiters in/out.** Deactivates the limiter sidechain.

### **Global**

**Link.** Links the two channels sidechains.

**Bypass.** Thru bypass switching.

\* = added functions and times.

### **Note1**

As the timing circuit is a very simple circuit containing two resistors and one capacitor, like a potentiometer, max CCW gives a short attack and a long recoverytime and max CW gives a long attack and a short recoverytime. Some settings with the added attack / recoverytimes can act strange as the settings will fall outside the normal settings window like a very long attacktime and a very short recoverytime will not work good together.

### **Note2**

Since this unit has a transformer balanced output it's important that the output is loaded with 600 ohms impedance. If not, this will result in a HF boost

Since most of today's gear has a 10kohms input impedance this unit is provided with a 600ohm termination jumper, located between the in/output XLR's.

### **Note3**

Since both inputs and outputs are transformer balanced, both pin 2 and 3 must be connected. For unbalanced use, link pin 1 & 3 in the connected XLR's!

Pin 2 = Hot

### **Chassis ground**

Chassis is connected to signal ground via a short cable from grd on the terminal on CH2 pcb to one of the screws that holds the pcb.