OWNER'S MANUAL

VERMONA



„RM1“

analogue ring modulator

Foreword

Thank you for purchasing the VERMONA RM1 – analogue ringmodulator.
The RM-1 is a classical ringmodulator that gives you numerous control- and connecting possibilities

Please read this manual carefully to become familiar with your RM1. We believe you will have much fun with it.

The VERMONA Team

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General

Important safety information

The following safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings in this manual violates safety standards of design, manufacture and intended use of this equipment.

The manufacturer assumes no liability for the customer's failure to comply with these requirements!

Ground and power connection

To prevent the risk of electrical shock, this equipment must be grounded. The factory setting for power is already made for each country (115V AC, 230V AC). An individual setting is not allowed by virtue of safety reasons. This modification must be done by qualified personnel only!

Voltage peak

The units are equipped to manage voltage peaks, which are often generated at live situations. When using the units with unstable voltage, please make sure that the device is grounded.

Use near explosive goods

The units should not be used near easily flammable or explosive goods.

Dampness

The units should not be used in damp or wet places. Make sure the unit is not in humid atmospheres, because this could cause condensation within the unit.
WARNING: Risk of electrical shock!

Connections

Only use cables, plugs and adapters, which do not affect the normal use of the unit.

Cooling System

The unit should not be used near heating or warm or hot fans. When using the unit in a rack or wall system, make sure that the unit has enough space to let the generated heat dissolve.

Cleaning

Please clean the unit only with a dry duster. Do not use sharp cleaning fluids or water!

Spare parts or modifications

Modification instructions and schematic information should only be used from service departments of our official authorized VERMONA dealers. To prevent the risk of electrical shock, please do not open or modify the unit yourself. Before opening the unit always disconnect the power lead/AC Adapter. Opening or modifying the units causes the loss of warranty claims!

Warranty

The manufacturer warrants this product to be free of defects in material and/or workmanship. The manufacturer's warranty does not apply to products that have been damaged due to and/or subjected to improper handling by shipping companies (forwarders), negligence, accidents, improper use or alteration not authorized by the manufacturer.
This warranty is in lieu of an excluded all other warranties, expressed or implied. The manufacturer will not be liable for incidental or consequential loss or damage whatsoever, whether based upon allegations or negligence, breach of warranty, or otherwise. This disclaimer of incidental or consequential damages includes, but is not limited to, property damages, loss of profits, loss of time or other losses or inconvenient resulting from any defect in the material or workmanship of this product or any other connection with the purchase, operation or use of this product.

Technical changes

All changes, which improve the technical features of the units, can be made without subjective notice by the manufacturer.

Functionality and Features of the RM1

A ringmodulator multiplies two signals and gives out their sum and difference.
Here is an example: You feed a ringmodulator with two sine waves. Sine wave 1 has a frequency of 500Hz and sine wave 2 has a frequency of 100Hz. On the output of the ringmodulator you'll get again two sine waves: one with 400Hz (500Hz – 100Hz) and the other with 600Hz (500Hz + 100Hz). With other more complex signal sources, the result is also much more complex and unforeseeable, that's why a ringmodulator is a very experimental effect unit with a huge potential of unusual and noisy effects, but it also can generate numerous moderate and well-sounding tremolo effects.

As you see from the example, a ringmodulator always needs two signals: the so-called carrier- and modulator-signal. Therefore the VERMONA RM1 has a well-equipped internal oscillator which delivers the carrier signal.

The CARRIER oscillator

… is a real voltage controlled oscillator as found in analogue synthesizers. Its output waveform can be shaped from sine to triangle and with an external control voltage it even can be played in tune like a real synthesizer (in a three-octave range).
The frequency of the carrier VCO can be set from 0,5Hz up to 5kHz. When using low frequencies, you'll get some really nice tremolo effects out of the RM1, with higher frequencies you can transform the input signal into total sonic madness!
For bringing "live" in the effect, the carrier oscillator can be modulated from three different sources simultaneously.

The LFO

.. has a range from 0,05Hz up to 50Hz (20 seconds). You can choose between four waveforms: positive and negative sawtooth, triangle and square. The speed and intensity of the LFO can be modulated by an external control voltage or a foot controller (this is a very interesting features for live performances).
Additionally there's an output jack for the LFO signal, so you can modulate external devices with the RM1's LFO.

The Envelope Follower

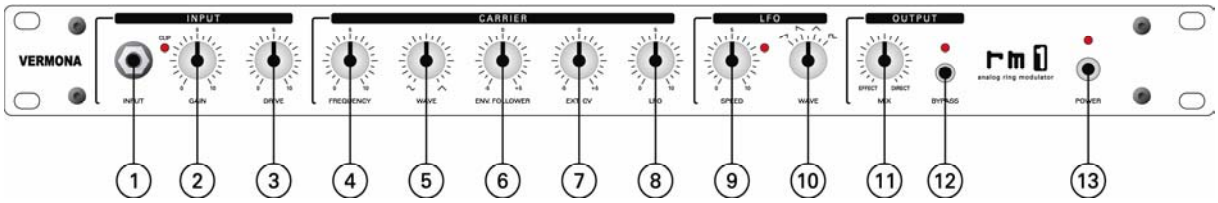
… modulates the frequency of the carrier oscillator in dependence of the level of the input signal. This is a very special feature of the RM1. It can be used very well with guitar- and synthesizer signals, where you can dose the loudness of the signal very controlled (by hand or by envelope generator).

The CV IN jack

… can be used to plug in an external control voltage or an foot controller for modulating the oscillators pitch. I.e. if you have a modular system, you could use an envelope generator for modulating the VCO.
The amounts of all three sources can be adjusted separately from each other.

Control Surface Features

Front Panel



(1) **INPUT** TRS jack for connecting an input signal. This input has always priority against the rear input (see below). It's high-Z, so it can be used i.e. directly with guitar signals.

(2) **GAIN** knob for setting the input level. The appendant CLIP LED should flash up only at level peaks

(3) **DRIVE** with this knob you set the distortion amount for the input signal – be careful!

(4) **FREQUENCY** knob for adjusting the frequency of the carrier oscillator

(5) **WAVE** controller for shaping the oscillator's waveform. You can shape from sine ("0") to triangle ("10")

(6) **ENV. FOLLOWER** knob for setting the intensity of the envelope follower. The amount can be set positive or negative

(7) **EXT. CV** knob for setting the intensity of the external control voltage. The amount can be set positive or negative

(8) **LFO** knob for setting the intensity of the LFO

(9) **SPEED** knob for adjusting the frequency (speed) of the LFO. The appendant LED shows the current frequency.

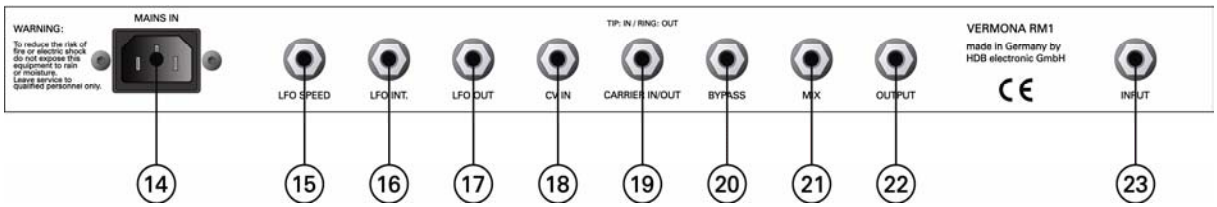
(10) **WAVE** switch for choosing the waveform of the LFO

(11) **MIX** knob for adjusting the mix between direct- and effect signal. If the controller is set to "direct" you won't hear any ringmodulator effect, only the input stage (GAIN and DRIVE) is used.
If you set the controller to "effect", you only her the effect signal.
Many effects are good with a mix between direct- and effect-signal, other effects are better with 100% effect amount. Just try it out!

(12) **BYPASS** switch for setting the RM1 bypass. If the BYPASS LED is on, bypass is active.

(13) **POWER** … without words :-)

Rear Panel



(14) **POWER IN** power socket

(15) **LFO SPEED** jack for connecting an external CV source or a foot controller for modulating the LFO speed

(16) **LFO INT.** jack for connecting an external CV source or a foot controller for modulating the LFO intensity.

(17) **LFO OUT** output jack for the LFO signal

(18) **CV IN** jack for connecting an external CV source or a foot controller for modulating the carrier oscillator frequency. Its intensity can be set with the EXT. CV knob (7) on the front panel.

(19) **CARRIER IN/OUT** jack for feeding the RM1 with an external carrier signal. It's also the output jack for the internal carrier oscillator.

(20) **BYPASS** jack for connecting a footswitch for the BYPASS function. If a switch is connected to this jack, the BYPASS switch on the front panel is deactivated.

(21) **MIX** jack for connecting an external CV source or a foot controller for modulating the MIX function. If any source is connected to this jack, the MIX controller on the front panel is deactivated.

(22) **OUTPUT** output jack

(23) **INPUT** input jack – is deactivated if a audio source is connected to the front input jack.

Getting Started

Unpacking

All VERMONA devices are checked and tested carefully before packaging. In spite of the specially designed cartons and the solid build quality of the devices, damages during transportation are possible. Please check the unit after receipt for visible damage.
Please do not discard the original packing! Use it for shipping the unit again, should this be necessary.

Inventory

The VERMONA RM1 comes complete with:

- The VERMONA RM1
- AC 12V / 830mA power supply
- This manual

Connections

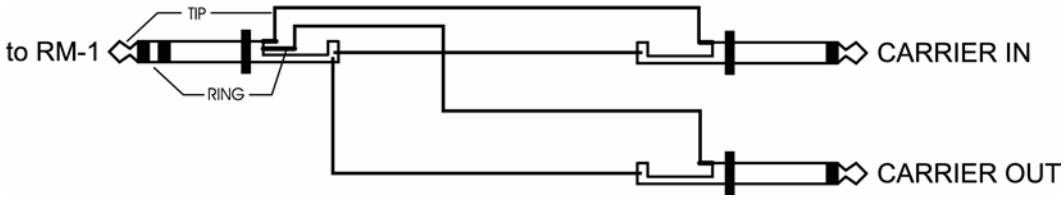
Setting up the necessary audio connections

- Connect the included power cord to a power receptacle
- Connect the audio output of the RM1 (22) to the input of your mixing console, amplifier, etc.
- Connect the output of your audio source to the input jack of the RM1 (1) or (23)

Warning: Before switching on/off the RM-1 turn your amp's volume all the way down to avoid damage due to on/off switching noise!

Carrier IN/OUT

Beside the internal carrier oscillator you can also connect any external audio source as carrier. Additionally there's an output for the internal VCO signal – you can use the signal as audio- or as CV signal for modulating other devices.
The CARRIER IN/OUT jack (19) is assigned following:



Declaration of conformity

for VERMONA RM1

We declare under our sole responsibility that this product is in conformity with the following standards or standardization documents in attention of operation conditions and installation arrangements acc. to operating manual:

EN61000-3-2, EN 61000-3-3, EN 55013, EN 55020, EN 60065
according to the provisions of the regulations 89/336/EWG and 73/23/EWG.

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