VERMONA

„PERFOURMER"

quad analog synthesizer

Foreword

With the PER-FOUR-MER we picked up an idea of the polyphonic origin: 4 individual analog synthesizers combined in one housing which can be played in different modes – mono-, duo- or polyphonic. As if this isn't enough, we implemented the possibility to combine these four synthesizer freely to give you the chance to integrate the Perfourmer in your live- or studio-equipment as flexible as possible.

Furthermore we paid heed to give the Perfourmer an intuitive user interface – according to the good analog tradition, each function has an own controller or switch. Displays and menus will have a better practical use in other devices.

To get the maximum out of the device and to have much fun with the Perfourmer, you will find tips and concrete practical advices beside the technical descriptions in this manual, which starts along with this:

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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 personal 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 easy 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 condensations within the unit.
WARNING: Risk of electrical shock!

Connections

Do 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 noticed by the manufacturer.

Control & Connection Features

Front Panel
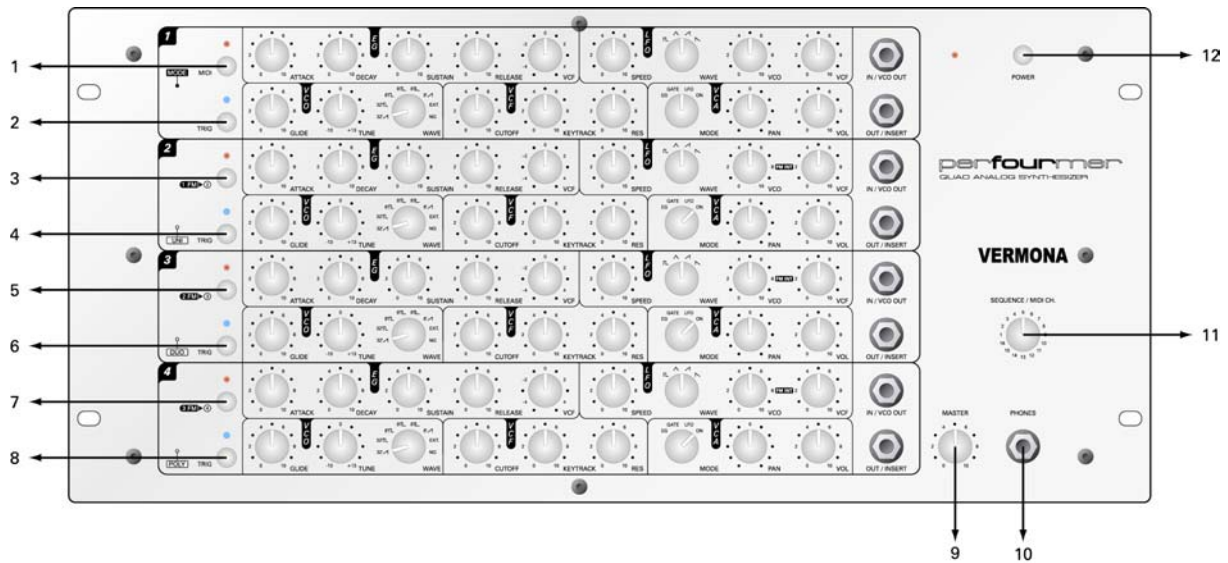
1   **MODE / MIDI:** button for setting the mode and the MIDI channels for each synthesizer channel of the PERFOURMER

2   **TRIG:** button for starting the test sequence of synthesizer channel 1

3   **1 FM 2:** switch for activating FM between the synthesizer channels 1 and 2

4   **UNI / TRIG:** button for starting the test sequence of synthesizer channel 2 or for selecting the UNISONO mode in combination with the MODE / MIDI button

5   **2 FM 3:** switch for activating FM between the synthesizer channels 2 and 3

6   **DUO / TRIG:** button for starting the test sequence of synthesizer channel 3 or for selecting the DUOPHONIC mode in combination with the MODE / MIDI button

7   **3 FM 4:** switch for activating FM between the synthesizer channels 3 and 4

8   **POLY / TRIG:** button for starting the test sequence of synthesizer channel 4 or for selecting the POLYPHONIC mode in combination with the MODE / MIDI button

9   **MASTER:** controller for adjusting the PERFOURMER's master volume

10   **PHONES:** headphone jack

11   **SEQUENCE / MIDI:** encoder for selecting a test sequence in normal PLAY mode or for setting the midi channels in MIDI mode

12   **POWER Switch and LED**

Rear Panel
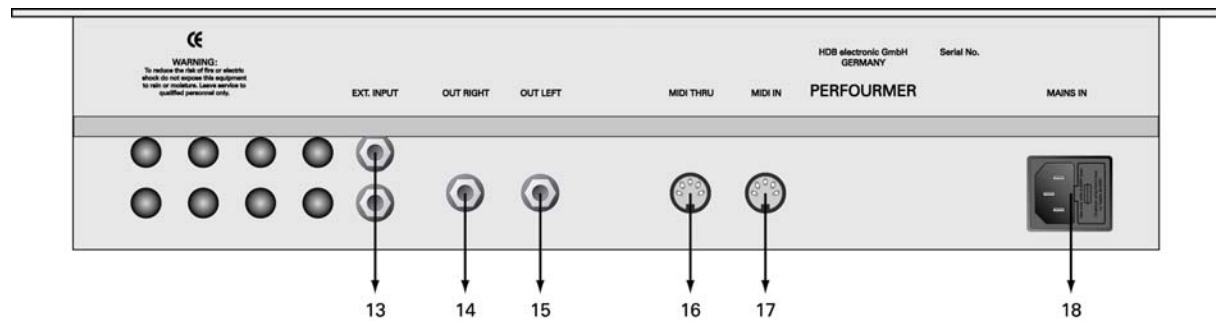
13   **EXT. INPUT:** filter inputs for external audio signals. Signals that you insert into these jacks are mixed together internally, and sent parallel to all four synthesizer channels.

14   **OUT RIGHT:** output jack for the right channel

15   **OUT LEFT:** output jack for the left channel

16   **MIDI THRU**

17   **MIDI IN**

18   **MAINS IN:** power jack with fuse

Getting started

Unpacking

All VERMONA devices are checked and tested carefully before packaging. In spite of specially made cartons and the solid build of the devices, damage during transportation is possible. Therefore we would like you to please check the unit after receipt for visible damage.
Please do not discard the original packing! Use it for shipping the unit again, if this is necessary.

Inventory

The VERMONA PERFOURMER comes complete with:

- the VERMONA PERFOURMER
- Power cord
- this manual

Please ensure all items above are included. If something is missing contact your local dealer.

Connections

Setting up the necessary audio connections

- Connect the PERFOURMER with the included power cord to the power socket.
- Connect the stereo outputs of the PERFOURMER (14 and 15) with the line inputs of your mixing console, amplifier, etc. (Alternatively you can connect headphones to the phones jack (10))
- Press the POWER Switch (12) to turn the PERFOURMER on.

Note: Before connecting and disconnecting the PERFOURMER to a power supply source, turn your amp's volume control all the way down to avoid damage due to on/off switching noise!

Setting up the MIDI connections

- Connect the MIDI IN jack (17) with the MIDI OUT jack to your MIDI source (i.e. sequencer, keyboard, etc.)
- Use the MIDI THRU jack (16) for connecting further MIDI devices.

Structure

The PERFOURMER has four individual synthesizers (synthesizer channels), that can be linked in any arbitrary combination. You can use them in three modes.

Synthesizer Channels
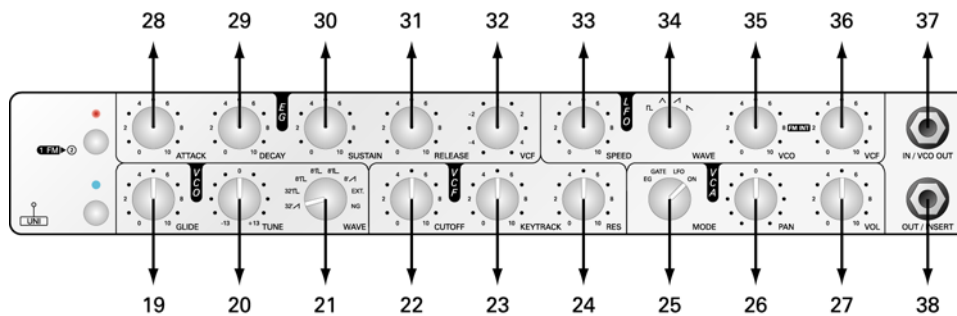
Each channel of the PERFOURMER is divided into following sections: VCO, VCF, VCA, EG and LFO.

VCO (Voltage Controlled Oscillator)

19   **GLIDE:** controller for adjusting the GLIDE time of the oscillator in a range of 0 to 3 seconds

20   **TUNE:** controller for adjusting the oscillators pitch in a range of +/- 13 halftones

21   **WAVE:** switch for selecting the waveform of the oscillator or for activating the noise generator or an external signal:

- 32' sawtooth
- 32' square
- 8' square
- 8' pulse (1/3)
- 8' pulse (1/7)
- 8' sawtooth
- EXT. – external audio signal
- NG – white noise

Note: Because of the TUNE controller covers a range of more than two octaves (+/- 13 semitones), you can also get pitches in 64' (32' - 1 octave), 16' (32' + 1 octave or 8' – 1 octave) and 4* (8' + 1 octave).

VCF (Voltage Controlled Filter)

22   **CUTOFF:** controller for adjusting the CUTOFF frequency of the filter

23   **KEYTRACK:** controller for adjusting the proportion between the CUTOFF frequency and the played pitch. The more the controller is turned to the right, the more the CUTOFF frequency will be affected by the pitch. If the KEYTRACK controller is set to position "9", the amount is about 100%.

24   **RES:** controller for setting the resonance level. At high resonance values, the so-called self-oscillation of the filter begins (about values of 7 or 8). The self-oscillation results in a generated sine wave, whose pitch depends on the cutoff frequency.

TIP:
You can use the filter's self-oscillation as sound source. It can be played in a range of 3 to 4 octaves. For that, the KEYTRACK parameter has to be set exactly to 100%. The best way to adjust KEYTRACK is when setting the resonance level to maximum and switching off the oscillator (WAVE controller to EXT., no signal fed into the input jack). Check out different settings of the CUTOFF and KEYTRACK controllers, until you can play the filter in tune. Ensure, that the filter's cutoff frequency will not be modulated by the envelope generator or the LFO!
You can use another synthesizer channel as reference for setting the exact pitch for the filter's self-oscillation.

VCA (Voltage Controlled Amplifier)

25   **MODE:** switch for choosing the modulation source for the VCA

- EG – the VCA will be influenced by the envelope generator
- GATE – the VCA will be influenced by a fixed GATE envelope
- LFO – the VCA will be modulated by the LFO
- ON – the VCA is always on

26   **PAN:** controller for adjusting the panorama position of the synthesizer channel

27   **VOL:** controller for adjusting the volume of the synthesizer channel

EG (Envelope Generator)

28   **ATTACK:** controller for adjusting the ATTACK time in a range of 1ms to 10s

29   **DECAY:** controller for adjusting the DECAY time in a range of 1ms to 20s

30   **SUSTAIN:** controller for adjusting the SUSTAIN level in a range of 0% to 100%

31   **RELEASE:** controller for adjusting the RELEASE time in a range of 1ms to 40s

32   **VCF:** controller for adjusting the amount of the envelope generator to the CUTOFF frequency of the filter. The envelope generator can influence the CUTOFF frequency in both the positive and negative direction. In the middle position (0), the filter won't be influenced.

TIP:
With an inverted (negative) envelope, you can work as with an additional element. If the filter's cutoff frequency is relatively high, the ATTACK controller works like DECAY – and contrariwise. While the cutoff frequency decreases to the specific sustain level when using a positive envelope, the cutoff frequency decreases (using the ATTACK controller) and afterwards increases (using the DECAY controller) to the adjusted cutoff value.
That sounds more complicated as it actually is – just check it out!

LFO (Low Frequency Oscillator)

33   **SPEED:** controller for setting the speed of the LFO in a range of 15ms to 15s

34   **WAVE:** switch for choosing the wave form of the LFO. The following shapes are possible:

- positive sawtooth
- negative sawtooth
- triangle
- square

35   **VCO:** controller for adjusting the LFO intensity to the frequency of the oscillator

36   **VCF:** controller for adjusting the LFO intensity to the CUTOFF frequency of the VCF

Linking Synthesizer Channels

The synthesizer channels of the PERFOURMER can be combined easily. You just have to set the synthesizer channels you would like to combine to the same MIDI channel. The following steps are necessary:

1. Press the MODE/MIDI button (1) to change into EDIT mode. The MODE/MIDI LED illuminates.
2. Set the MIDI CH./SEQUENCE controller (11) to the desired MIDI channel.
3. Press the TRIG button of the synthesizer channels you would like to link on the chosen MIDI channel.
4. Repeat steps (2) and (3) until you have configured the PERFOURMER.
5. Leave the EDIT MODE by pressing the MODE/MIDI button again.

Example: You would like to combine the first three synthesizer channels of the PERFOURMER on MIDI channel 1 and the fourth synthesizer channel independently on MIDI channel 2:

1. Change into the EDIT mode, by pressing the MODE/MIDI button.
2. Set the MIDI CH./SEQUENCE controller to MIDI channel 1.
3. Press the TRIG button of the synthesizer channels 1, 2 and 3.
4. Set the MIDI CH./SEQUENCE controller to MIDI channel 2.
5. Press the TRIG button of synthesizer channel 4.
6. Leave the EDIT mode.

The last settings will be stored, even after switching the PERFOURMER off.

MODES

All linked synthesizer channels can be used in one of three modes:

UNISONO

In this mode, all linked channels function as one monophonic synthesizer. In the example above, the first three synthesizer channels would be one fat monophonic synthesizer with three oscillators, three filters, three envelope generators, etc. The fourth synthesizer, which isn't combined with any of the others, works as an independent monophonic synthesizer.

POLYPHONIC

The opposite of the UNISONO mode is the POLYPHONIC mode. All combined synthesizer channels work as one polyphonic synthesizer. In the example above, the first three synthesizer channels would be a three-voice polyphonic synthesizer, with one oscillator, one filter, one envelope generator, etc. per voice. The fourth synthesizer channel works independently as a monophonic synthesizer.

Compared with other polyphonic synthesizers, the PERFOURMER offers the possibility to program each voice differently to the others. I.e. if you set the CUTOFF frequency or PANORAMA position differently for each voice, you can easily create interesting polyphonic sounds.

You can also create interesting effects, when playing the PERFOURMER monophonic in polyphonic mode. Each time when the PERFOURMER receives a note-on command, another voice will be triggered.

DUOPHONIC

The principle of the DUOPHONIC mode differs a little bit from the principle of the other two modes, because of the combination of the channels is fixed.

In this mode the PERFOURMER works as a two-voice synthesizer. The synthesizer channels 1 and 2 are voice one and the synthesizer channels 3 and 4 are voice 2. All synthesizers are set to the MIDI channel of the first synthesizer channel.

In the example above, all synthesizer channels receive their midi messages on MIDI channel 1

Changing Modes

The modes will be selected with the TRIG buttons of the channels two, three and four, in combination with the pressed MODE / MIDI button.

- Channel 2 means UNISONO
- Channel 3 means DUOHPONIC
- Channel 4 means POLYPHONIC

Following steps are necessary to change the mode:

1. Press and hold the MODE / MIDI button
2. One of the three TRIG LEDs of channel two, three or four lights up – that shows the current mode
3. Press the TRIG button for of the three Modes
4. Release the MODE / MIDI button

Tips for making sounds with more synthesizer channels

Because of the synthesizer channels of the PERFOURMER are completely individual units, the generation of multi-oscillator sounds differs from other synthesizers.

Close the VOLUME controller of all involved synthesizer channels, except of the first-one. Do not modulate this channel in any way, yet. Press a key of your master-keyboard or use the TRIG button of the PERFOURMER to bring the pitch of the first channel in tune.

Open the VOLUME controller of the second channel and assimilate the tuning. Because of the PERFOURMER is completely analog, it is possible, that the optical position of the two TUNE knobs is not equal at same tuning. Close the second channels VOLUME controller and repeat the Tuning for channels three and four, if necessary. Check all channels together afterwards. Note, that you have to press the corresponding number of keys in POLYPHONIC mode.

And again close all VOLUME controllers, except of synthesizer one and adjust the filters, envelopes and LFOs in the same way – one channel after the other. Equal adjustments for the LFO speeds is a little bit difficult, especially at low rates. OK , we confess – it's nearly impossible, because of they work independently of each other and the can't be retriggered, an absolute synchronization is debarred. But that's no reason to renounce for the use of LFOs. Try this: Adjust the LFO of the first channel as you like. Try to get a similar LFO speeds for the other channels, but decrease their intensity compared with the intensity of channel one. You will mainly perceive the modulation in channel one, but you won't have the impression that the other channels are static. That works good in the UNISONO mode, in POLYPHONIC mode it only works, if you use the same number of voices.

If you would like to have a equable, slow modulation, you should use the modulation wheel or a MIDI LFO.(with midi Controller #1) for the filter modulation.

In UNISONO mode it is very interesting to make different settings for the involved synthesizer channels. Vary the CUTOFF frequencies and resonance levels for new harmonic structures, combine slow and fast LFOs with different intensities, spread the synthesizer channels with the PANORAMA settings to get wider sounds. Of

course you can tune the synthesizers in different intervals. At this point you will discover the real potential of the PERFOURMER.

In POLYPHONIC mode, these possibilities depend on the style of playing. If you always play chords with the same number of voices, you can use aberrant settings for each channel in the same way than in UNISONO mode. If you play more "complex", the sound variations of the channels will not always result in the desired effect, because of the sequentially use of the voices. On the other hand, this can result in some interesting and strange sound creations.

FM (Frequency Modulation)

The PERFOURMER offers the possibility to modulate the VCO- and CUTOFF frequency of a synthesizer channel through its preceding synthesizer channel.
That means, I.e. synthesizer channel 2 can be modulated by synthesizer channel 1. In this case, synthesizer channel 1 would be the "modulator" and synthesizer channel 2 would be the "carrier". The FM can be continued until synthesizer channel 4.
When pressing the FM switch on the synthesizer channels 2, 3 and 4, the previous channel is the modulator.
The Intensity of the modulation can be adjusted with the VCO and VCF controllers in the LFO section of the carrier. The LFO of the carrier channel can only be set to VCA (MODE switch to LFO).

TIP:
You will get good results with FM, when the Carrier is modulated with a sinewave. Although the oscillators of the PERFOURMER have no sine wave, you can easily create a sine by filtering a square wave.
Set the KEYTRACK to 100% (see also VCF section above), for having the same proportion between pitch and CUTOFF frequency over a wide key range.

The modulation signal will be taken before the volume controller of a synthesizer channel. So the modulation also works, when the synthesizer channel is set to volume 0.

The PERFOURMER as a Filterbank

The PERFOURMER has a total of six input jacks for processing external signals with the filters of the PERFOURMER.
Each channel has a separate filter input (37) that works parallel to the oscillator of the respective synthesizer channel.
Two more input jacks are located on the rear panel of the PERFOURMER (13), that works alternatively to the oscillators signal. Both input jacks are mixed together internally and routed parallel to all four synthesizer channels. Their signal will be activated, when setting the VCO WAVE switch (21) to "EXT."

TIP:
You can feed the inputs of the PERFOURMER with internal signals
I.e. if you connect the OUT jack of one synthesizer channel with the input jack of the next, you can create a synthesizer that has two envelopes and two LFOs. Use the envelope generator of the first synthesizer channel for the VCF and set the VCA MODE (25) to ON or GATE. The envelope generator of the second channel can be used for modulating the VCA.
The filters of the two synthesizer channels are now connected in a row, if you set their CUTOFF frequency equal, you'll get a low pass filter with 48dB/octave.

TRIG button / SEQUENCE

Each synthesizer channel can be triggered with internal demo sequences. You can choose between four different notes and 13 melodies using the MIDI CH./SEQUENCE controller. For triggering a specific synthesizer channel, press its TRIG button (2), (4), (6) or (8).
The TRIG buttons of the channels 2 to 4 are also used for setting the mode of the PERFOURMER, in combination with the MODE/MIDI button.

MIDI

The PERFOURMER can be controlled via MIDI.
The MIDI channels can be adjusted freely (see: Linking Synthesizer Channels).
The PERFOURMER understands NOTE ON and NOTE OFF messages, as well as PITCHBEND and MODULATION WHEEL information.
Besides, you can choose a base MIDI channel, on which it can receive different MIDI controllers for adjusting things like MIDI channel of the synthesizer channels, mode, etc.

Adjusting the base MIDI channel

1. Switch off the PERFOURMER, if that's not the case.
2. Set the MIDI CH./SEQUENCE controller (11) to the desired MIDI channel.
3. Hold down the MODE / MIDI (1) and TRIG button of the first synthesizer channel (2) while switching the PERFOURMER on.
4. Now, the adjusted MIDI channel is base MIDI channel and the PERFOURMER is reset to the factory settings.

PITCHBEND

The Pitchbender influences the pitch of the oscillators in a range of +/- 3 halftones.
If more synthesizer channels are connected, all oscillators will be influenced by the pitchbender, but it's also possible to deactivate / activate the pitchbender for each synthesizer channel via MIDI control changes.

MODULATION WHEEL

The modulation wheel takes influence to the CUTOFF frequencies of the filters.
If more synthesizer channels are connected, all cutoff frequencies will be influenced in the same manner. But it's also possible to activate / deactivate the modulation wheel for each synthesizer channel via MIDI control changes.

Activate / Deactivate Pitchbender and Modulation Wheel messages

Pitchbender and modulation wheel messages can be activated or deactivated for each synthesizer channel, by sending the corresponding MIDI control changes on the BASE MIDI CHANNEL to the PERFOURMER:

Midi Controller

Controller	Function	Value
20	MODE	0 – UNISONO 1 – DUOPHONIC 2 – POLYPHONIC
21	Synth1 MIDI Channel	0 … 15
22	Synth2 MIDI Channel	0 … 15
23	Synth3 MIDI Channel	0 … 15
24	Synth4 MIDI Channel	0 … 15
84	Synth1 PITCHBEND	0 … 63 – OFF; 64 … 127 – ON
85	Synth2 PITCHBEND	0 … 63 – OFF; 64 … 127 – ON
86	Synth3 PITCHBEND	0 … 63 – OFF; 64 … 127 – ON
87	Synth4 PITCHBEND	0 … 63 – OFF; 64 … 127 – ON
88	Synth1 MOD. WHEEL	0 … 63 – OFF; 64 … 127 – ON
89	Synth2 MOD. WHEEL	0 … 63 – OFF; 64 … 127 – ON
90	Synth3 MOD. WHEEL	0 … 63 – OFF; 64 … 127 – ON
91	Synth4 MOD. WHEEL	0 … 63 – OFF; 64 … 127 – ON

We whish you much fun with your PERFOURMER and please inform us, if it was involved in a No.1 Hit

The VERMONA-Team

Declaration of Conformity

for VERMONA PERFOURMER – quad analog synthesizer

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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