HOUND
SYNTHESIZER

MANUAL

SAFETY INSTRUCTIONS

- *This device must be grounded using the equipped mains power chord and plugged into the appropriate mains outlet . Care must be taken to maintain grounding at any time the device is used in any electrical configuration.*

- *Electrical power may be attached to the approriate inlet of the device ONLY, using the equipped mains power chord.*

- *Never remove the top cover. There are no maintenance parts in the device. Repairs or modifications may only be done by qualified service personel.*

- *Do not use the device nearby any water source or container such as bathtub, swimming pool, washbowl, kitchen sink, shower, or the like. Don't put your drink on top of the device.*

- *Do not use the device nearby any heatsource such as radiators, stagelights, hot air blowers, or the like.*

- *Make the nessesary electrical connections (including audio and MIDI) first before switching on the device. Don't remove electrical connections before switching off the device. Turn the volume of the attached equipment down completely before electrical connections are made or removed.*

- *Care should be taken to avoid hearing damage using the device in conjunction with speakers and headphones. Turn the volume as low as possible. Avoid long term exposure to sound.*

- *This device can be mounted in a 19" rack cabinet. Care should be taken to remain free space under and obove the device of at least 1 HU (one height unit). The case feed can be removed freely by unscrewing them causing no loose parts in the device.*

Dear owner of the HOUND Analog Synthesizer Module,

Congratulations with the purchase of the HOUND. Now you are the owner of a real analog synthesizer sharing both digital (and stable) oscillators with analog (and sounding) filters.

This synthesizer gives you the possibility to construct your own sound by adjusting the rich set of parameters with the help of the build in graphical orientated Patch Editor. You can make your bass part, setup a queer solo sound, and play chords at the same time in multi timbral mode.

The HOUND supports the use of several MIDI controllers to give expression to the music you make.

the HOUND features:

- 16 digital/analog synthesizer voices.

- Fully (16 part) Multi-Timbral.

- 2 oscillators (DCO's) per voice (saw, variable pulse & square, sine, sin-x, and noise).

- ❖ SOLE-MODE: 16 voice mono, up to **2** oscillators **for each** voice

or

- ❖ TWIN-MODE: 8 voice stereo, up to **4** oscillators **for each** voice

- FM modulation (DCO1 → DCO2 ≈≈≈ DCO3 ≈→ DCO4)

- Voltage Controlled filter (VCF) with resonance and FATNESS with 24 db lowpass/bandpass responce.

- 3 Envelope generators (ENV)

- 3 Low Frequency oscillators (LFO)

- Extensive modulation possibilities

- The Hound can operate with 10 MIDI controllers simultaniously

- Easy to use patch edititor with dynamic screen & shortcuts

- 4 outputs (assignable for each MIDI channel)

- Sample & Hold

- Polyphonic Portamento

- LFO3, ENV3, MIDI-pedal, can make a rotary speaker effect.

TABLE OF CONTENTS

INTRODUCTION

THE HOUND

➤ A sound is assembled by adjusting a set of parameters controlling oscillators, filters and alike. This set of adjusted parameters can be stored in a so called "PATCH". Once stored, a sound/patch can be summoned - and eventually changed - later. A total of **124** patches are available.
  A rich set of patches is stored in the factory, but you can change them all if you want. The free librarian program HOUNDLIB.EXE enables you to save the factory patches and all the stuff you make on your PC's harddisk.

➤ When you play a note this note is send to the Hound through a MIDI-channel. This MIDI-channel (numbered 1 … 16) can be selected on your keyboard.
  The Hound is a multi-timbral device. It can receive and respond on each MIDI-channel simultanously.

➤ Upto 16 Patches can be put in a so called "MULTI". Each MIDI-channel (numbered 1 … 16) has its own sound/patch assigned to it. A note played on a certain MIDI-channel will produce the sound of the patch assigned to it. Also stored in a "MULTI" is the routing of the sounds/patches to the 4 different outputs. A total of **24** different MULTI's are available.
  The free librarian program HOUNDLIB.EXE is also capable to save all your MULTI's on the harddisk of your PC.

note: A MIDI Patch change on a certain MIDI channel can overrule the patch number assigned to it. A MIDI Reset All Controllers (usually generated by your sequencer program) will restore the currently selected MULTI.

TWIN mode and SOLE mode

The HOUND can operate in two modes, the TWIN mode and the SOLE mode.

➤ In the SOLE mode, all patches are played in MONO. The routing of the distinct patches grouped in a MULTI can be set to one or more of the 4 outputs.

➤ In the TWIN mode, all patches are played in TRUE STEREO, actually two identical synthesizers are present, one for each specified output OUT1 & OUT2 or OUT3 & OUT4. This opens up possibilities to create extremely rich and/or complicated stereo sounds while no external effect processors are being used. When in the TWIN mode, half the number of voices are available.

➤ A patch contains all the data to support both SOLE and TWIN mode. You can make a normal patch for SOLE mode first and then you can edit the TWIN part later to make the patch sound with more room in it.
  This seems to be a waste if you only would use the SOLE mode, but there is more in it than only doubling the sound you hear.
  You can make a sound for TWIN mode only. You can switch both VCF's in series, assign 4 DCO's to the sound, and support more FM algorithms than in SOLE mode.

Patch Editor

➤ MULTI-TIMBRAL use and SOLE / TWIN mode are overruled when the Patch Editor is invoked. The HOUND operates in twin mode and responds on every MIDI-channel in the same way (OMNI).

Front panel controls
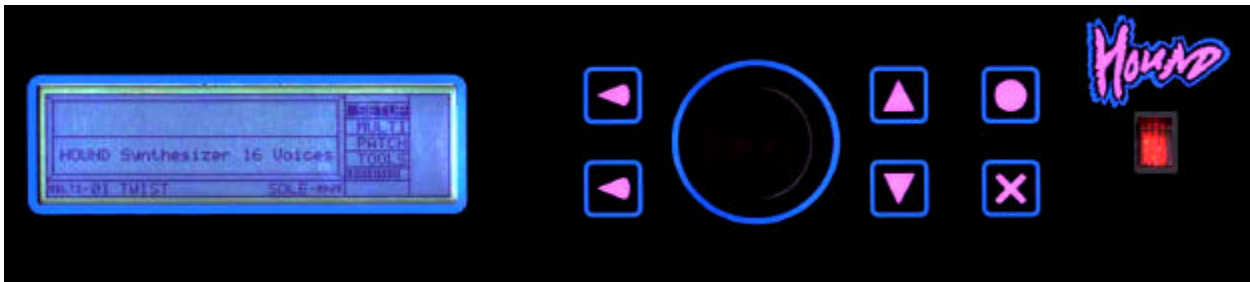
display   softkeys   dataknob   cursorkeys   enter key   mains
                                                          leave key

Dataknob

The dataknob is always used to change numerical and alphabetical values. When turning the knob slowly, the values will change **slowly**, when turning the knob quickly, the values will change **quicker**.

Cursor keys

The cursorkeys are always used to SELECT an item: an "entrance" to another page or a parameter.

- press ▲   =   move upwards or to the left
- press ▼   =   move downwards or to the right

note: "SELECT" = press ▼ and/or ▲ repeatedly until the desired item or parameter is highlighted.

Enter key

The enter key is generally used for going to a deeper editing level. For instance, when in the HOUND's openingpage, there are four menu's to go to, from where submenu's are accessible.

- select an item (for instance "SETUP" or "PATCH") to set the highlight
- press ●   =   enter the section.

Leave key

The leave key is generally used for leaving a page.

- press ✖   =   leave the present page and go back to the previous page.

Softkeys (upper and lower)

The softkeys always have various special functions related a a particular page. In this manual softkeys are referred to in the following form:

- TEX **>** ◀ is an example of a softkey where TEX is visual on the display and ◀ is the key itself.

Rear panel: Connections

Mains receptacle	MIDI out	MIDI thru	MIDI in
	Output 4	Output 3	Output 2	Output 1

Mains inlet

Use **ONLY** the equipped mains power chord.

note: Connections, see next page (Powering up)

Audio Output connections

There are 4 audio connectors provided (all unbalanced ¼" phone). The simplest way to connect the HOUND to your soundsystem is to use connectors 1 ("left output") and 2 ("right output"). If you want to make a mono connection, use output 1 only.
Use ONLY shielded audio chords.

note: In a normal setup, connector 1 functions as stereo output "left" and as the main mono output. Connector 2 functions as stereo output "right".

note: Output assignment, see page 22: "MIDI-CHANNEL ROUTE"

MIDI connnectors

The following MIDI connectors confirm to the MIDI standard.

"IN"   is used to receive external data including System exclusive data.
"OUT"   is used to send System exclusive data.
"THRU'   echoes the data received at MIDI "IN"

Use ONLY shielded MIDI chords.

note: The HOUND comes with a PC orientated computer program used for exchanging data, in order to make it possible to store and load Patches and Multi's.

Powering up

- Insert the mains chord in the mains power inlet on the rear panel of the HOUND. Plug the other end of the chord into a grounded AC outlet (230V). Use <u>ONLY</u> the equipped mains chord.
- Connect audio output 1 and 2 of the HOUND to the line level inputs of a mixer or any other soundsystem, using shielded audio cables with ¼" phone connectors (audio jacks).
- Connect the MIDI input of the HOUND to a <u>MIDI output</u> of a masterkeyboard, synthesizer, or computer MIDI interface, using a shielded cable (MIDI cable).
- Adjust the gain of your soundsystem very carefully. The HOUND can produce VERY high sound dynamics!
- Turn the HOUND's power on and make sure the display lights up. If not, switch the power off and check your connections and powersource.

note: It's not neccesary to connect the MIDI output of the HOUND to any MIDI input unless the librarian program is used for purposes of loading and storing data on the harddisk of your PC.

note: MIDI THRU can be used to link a MIDI output, inserted into the MIDI input of the HOUND, to the next MIDI device. The HOUND must be switched on to let it work.

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Quickstart

Read first: page 12 "Powering up"

TWIN mode:

The default setting for "mode": is "TWIN-mode". When in the TWIN mode, all patches you are about to listen to, are in stereo.

note: If the HOUND is in SOLE mode see page 15: THE SETUP MENU to change it into TWIN mode

Patch:

A Patch contains all data which make up a sound.

Multi:

A Multi contains all data about: Which patch is assigned to what MIDI channel
Which output is assigned to what MIDI channel

Listening to the patches:

You can change the patch you want to hear in either the MULTI menu or the PATCH menu.
The MULTI menu operates in the multitimbral way. On each MIDI channel you can hear a different patch.
The Patch menu operates in the OMNI mode. The HOUND plays the selected patch on each MIDI channel.

Quickstart from the Multi menu

- press ▲ or ▼ repeatedly until "MULTI" is highlighted (= select "MULTI")

- press ⬤ = MULTI nr. 1 will be displayed (default setting). All patches assigned to all 16 MIDI channnels are displayed here and, presented by their patch numbers, playable in the MIDI MULTI mode.

- press ▲ or ▼ repeatedly = Select the patch nr. assigned to the desired MIDI channel, the patchname will display at the bottomline of the page.

❖ press ☐ > ◀ or ☐ > ◀ repeatedly = Scrolling through the available patches on the selected MIDI channel.
or
❖ turn the data knob

Quickstart from the Patch menu

- press ▲ or ▼ repeatedly until "PATCH" is highlighted

- press ⬤ = you have entered the patch list, all patches are presented here, playable in the MIDI OMNI mode.
- press ▲ or ▼ repeatedly = scrolling through the available patches.
- press ⬆ > ◀ or ⬇ > ◀ repeatedly = fast scrolling through the available patches

THE OPENING PAGE

page: opening page
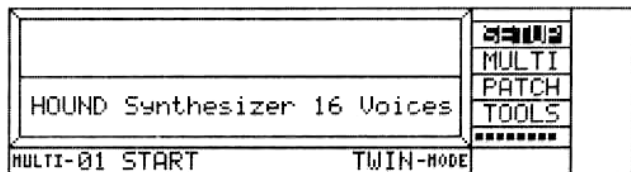
```
┌─────────────────────────────┬───────┐
│                             │ SETUP │
│                             │ MULTI │
│                             │ PATCH │
│ HOUND Synthesizer 16 Voices │ TOOLS │
│                             │▪▪▪▪▪▪▪▪│
├─────────────────────────────┴───────┤
│ MULTI-01 START        TWIN-MODE │
└─────────────────────────────────────┘
```

selected: the "door" to the SETUP menu
Multi: MULTI nr. 1, named "START!"
mode: TWIN mode

After powering up the HOUND *(see page 12 "Powering up")*, the opening page will appear. At the bottomline the present MULTI and the present mode (TWIN or SOLE) are being displayed. From this page one of the four submenu's can be choosen to make changes.

To proceed, one of four menu's can be selected.

"SETUP"   = Setup menu: set various default parameter values to define the start up configuration (mastertuning, Multi nr., basic MIDI settings, etc.)

"MULTI"   = Multi menu: select and edit the Multi's (patch/output assignment)

"PATCH"   = Patch menu: gives access to the Patchlist and the Patch Editor

"TOOLS"   = Tools menu: a collection of "tools": miditester, calibration, etc.

note: The text "HOUND Synthesizer 16 Voices" is only visual after switching on the mains, and disappears after the first keystroke.

note: If you have obtained a HOUND with less than 16 voices, the number of voices present in your HOUND will be displayed.

THE SETUP MENU

```
Mode--------- : TWIN
Multi-------- : 01      START
Master Tuning : 000
MIDI  Settings  : Edit
MIDI Controllers : Edit
```
```
SETUP  +
MULTI
PATCH
TOOLS  -
```
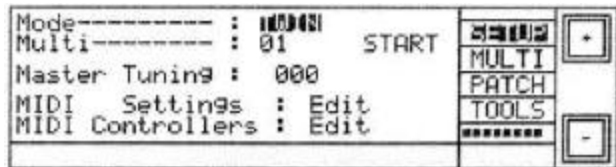
page: SETUP menu

selected: present play mode (= TWIN)

Introduction

In the SETUP menu, you can change three parameters and you can go to two submenu's:

parameters: Mode   submenu's: MIDI Settings submenu
               Multi   MIDI Controllers submenu
               Master Tuning

Play mode: "Mode"

"MODE":   "TWIN" (TWIN mode activated) or "SOLE" (SOLE mode activated)

- select "TWIN" or "SOLE" in the topline of the page

- press ▢ > ◀ or ▢ > ◀ repeatedly   = toggle between the TWIN mode and SOLE mode.

Active Multi: "Multi"

- press ▲ or ▼ repeatedly until 01 is highlighted (= active MULTI, default = nr. 1, "START!").

❖ press ▢ > ◀ or ▢ > ◀ repeatedly   = change the active Multi nr.

or

❖ turn the dataknob   = change the active Multi nr.

Master Tuning

The HOUND's default overall pitch is 440 Hz. The pitch can be changed +/- 1 semitone in steps of 1 cent.

- press ▲ or ▼ repeatedly until 000 is highlighted (= default value).

❖ press ▢ > ◀ or ▢ > ◀ repeatedly   = change mastertuning

or

❖ turn the dataknob   = change mastertuning

Midi Settings submenu

- press ▲ or ▼ repeatedly until " Edit " *(right of "MIDI Settings, see previous page)* is selected.

- press ⬤   = go to the <u>MIDI Settings submenu</u>

```
Basic Channel :   01
Patch Change- :  OFF
SYSEX-------- :   ON
```
```
SETUP
MULTI
PATCH
TOOLS
```
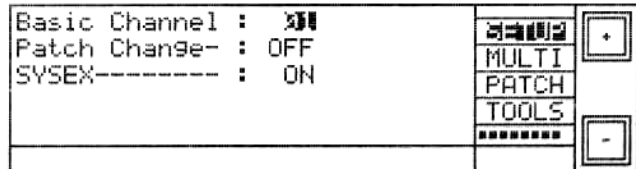
page: MIDI Settings submenu

selected: basic channel set to 01

In the submenu three parameters can be changed.

1 basic Midi Channel (only used for SYSEX).
2 enable/disable receiving Patch Change messages.
3 enable/disable sending or receiving Midi SYSEX messages.

- press ▲ or ▼ repeatedly until the desired parameter is selected.

❖ press ☐ > ◀ or ☐ > ◀ repeatedly   = change the present parameter value
or
❖ turn the dataknob   = change the present parameter value

note: When Patch Change is switched OFF a MIDI patch change message will not be executed, i.e. the current active MULTI always rules.

Midi Controllers submenu

- while in the SETUP menu, press ▲ or ▼ repeatedly until "Edit" (right of "MIDI Controllers") is selected.
- press ⬤   = go to the MIDI Controllers submenu

page: List of selected Midi Controllers

selected: Controller 1, happed to the Pitch Bend Wheel

The Pitch Bend Wheel and a selection of 14 MIDI controllers can simultaniously modulate the patches. Each patch has it's own controller assignment. In this page, make a selection for the controllers you want to receive.

❖ press ☐ > ◀ or ☐ > ◀ repeatedly   = change the present MIDI controller nr.
or
❖ turn the dataknob   = change the present MIDI controller nr.

note: MIDI controllers, recognized by the HOUND: controllers: #1 to #31 and #64 to # 95

It is recommended for the 1st and the 2nd column (*see figure above*) to select controllers which are being used for continous datachange functions. In the 3rd column, select controllers which normally are being used for pedal functions. In this way you can recognize the controllers by their markers:

♩ = Pitch Bend   ♫ = continuous datachange function   ▲ = pedal function

The selection of Midi Controllers as shown in the figure above is the default selection. It is recommended to stay as close to this selection as needed. As a shorthand this selection can be obtained by pressing
⬤ .

Confirm selection of the default

Press any softkey to confirm accepting the DEFAULT, or press any other key in case you change your mind.

note: When a change is made in the Midi Controller submenu all changes are displayed and stored immediately.

note: If in the list, as shown in the display above, a double name occurs this is an invalid situation. The second name (and Midi controller) will not be recognized. After leaving the SETUP a message (MIDI ERR) will occur on the bottomline, and keeps nagging until the setting is properly done.

Store default settings

In the SETUP menu, a number of default system parameter values are set. After having changed the setup configuration, the new configuration can either be stored or used temporarily while the power is on.

```
Press [YES]     if changes        SETUP    +
                must be saved     MULTI
                                  PATCH
Press   [X]    to let changes     TOOLS
                be temporaly      ·······  YES
```
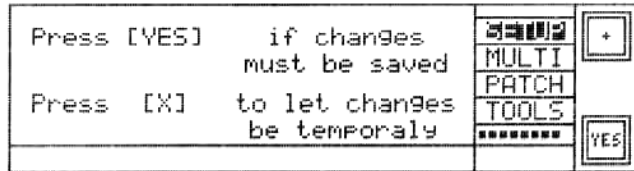
the dialog page

- while in SETUP page press   ☒   = leave the SETUP submenu and go to the dialog page.

❖ while in the dialog page press **YES** > ◄ = new default values are set and stored

or

❖ while in the dialog page press   ☒   = old default values will remain stored, but the changed values remain active until the HOUND is switched off.

When no changes are made the dialog page doesn't appear after leaving a submenu.

note: when leaving the Midi Controllers submenu the dialog page doesn't appear as changes are always stored immediately.

THE MULTI MENU

Introduction

The MULTI menu consists of two pages:

1. **MIDI-CHANNEL-PATCH**   patch assignment for each of the 16 MIDI channels.
2. **MIDI-CHANNEL-ROUTE**   output assignment for each of the 16 MIDI channels.

When going to the MULTI menu, you enter the "MIDI-CHANNEL PATCH" page first. The number of the present MULTI is visible (and highlighted) at the top of the page on the left side, the name of the MULTI is visible in the centre at the top.

In the HOUND's opening page:

- select MULTI and press   ■   = go to MIDI CHANNEL PATCH.

- press □ > ◄ or □ > ◄ repeatedly   = change the present MULTI number up/down.

note: changing the present MULTI number will be a temporal change until the Hound is switched off. You can only change the default MULTI number in the SETUP menu (see page 15, THE SETUP MENU).

In MIDI CHANNEL PATCH, when the patch nr. is highlighted:

- press   ■   = go to MIDI CHANNEL ROUTE.

In MIDI CHANNEL ROUTE, when the patch nr. is highlighted:

- press   ■   = go back to MIDI CHANNEL PATCH.

note: All changes made in the MULTI MENU (with exception of renaming the name of the MULTI) are stored without confirmation.

note: When you are navigating through the MULTI MENU the MIDI controllers are reset or volume is set to the default value (stored in the patch).

Renaming a multi

Renaming a MULTI can be done in both MULTI pages. When turning the dataknob, the name of the MULTI becomes highlighted. It is now possible to change the name.
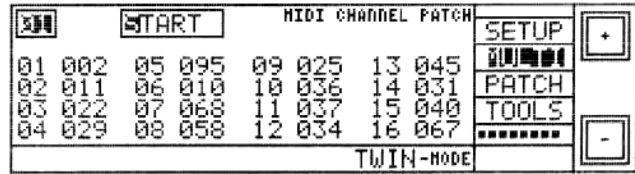
page: MIDI CHANNEL PATCH

selected: first character to be changed

• turn the dataknob	= activate the MULTI name, ready for renaming.
❖ press ☐ > ◀ or ☐ > ◀ repeatedly or	= change the present character, move up/down.
❖ turn the dataknob	= change the present character.
• press ▲ or ▼	= go to next/previous character.
❖ press ● or	= confirm renaming the MULTI.
❖ press ✖	= cancel renaming the Multi.

Leaving the MULTI pages

1. In case the highlight/select is positioned on a specific MIDI channel in either PATCH- or MULTI- page press ▲ or ▼ repeatedly until the MULTI nr. on top of the page is highlighted again. You can also press ✖ to move the highlight/select to the top immediately.

2. press ✖　　　　　　　　　　　　　= leave the MULTI menu and go back to the opening page.

note: All changes made in a MULTI are changed without confirmation and remain changed even after switching off main power, until new changes are being made.

Patch assignment: "MIDI CHANNEL PATCH"

page: MIDI CHANNEL PATCH

selected: present MULTI nr. (01, START)
the MULTI submenu is active

• press ▲ or ▼ repeatedly   = select the patch you want to exchange

selected: Patch Nr. 22 on MIDI-channel 03

❖ press ☐ > ◀ or ☐ > ◀ repeatedly   = scroll through the patch nrs. and change the patch.
or
❖ turn the dataknob   = scroll through the patch nrs. and change the patch.

Entering the Patch Editor.

When you have selected a specific patch number (see figure above) it is possible to modify the patch
which number is selected by entering the Patch Editor. See page 25 where this item will be explained.

• press ●   = enter the Patch Editor.

note: The actual patchname will be visible at the bottom of the page after selecting a patch nr.

*note: Changes in a MULTI are stored without confirmation, however when you are changing a patch
number and remain in the screen above (Patch Nr. 22 highlighted) the storage is not yet done.*

It is good practice to go out of this screen by pressing ✖ *as the changed patch number(s) are then
actually saved.*

Output assignment: "MIDI-CHANNEL ROUTE"

The HOUND has 4 outputs.
When playing in the TWIN mode these outputs function as stereo pairs. For a choice of possible output assignments, see below.
When playing in the SOLE mode, the outputs function as independant mono outputs, any output configuration is possible.
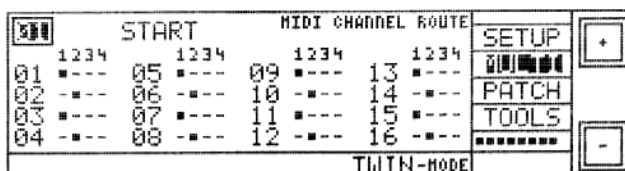
page: MIDI-CHANNEL ROUTE

selected: present MULTI nr. (01, START!)
the MULTI submenu is active

At the right of each MIDI channel nr. four positions are displayed, representing the 4 outputs. Each of these positions are displayed by the symbols which represent the present output status.

" " = output enabled   "—" = output disabled

- press ▲ or ▼ repeatedly   = select the "output **carriage** display" belonging to a
  MIDI-
                                         channel
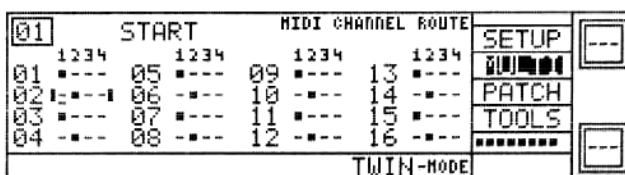
selected: output routing Nr. 02

When a MIDI-channel number is selected a **carriage** is visual. This **carriage** has a cursor/underline which can be moved along column **1**, **2**, **3** and **4**.

- press one of the ⬚ **>** ◀ repeatedly   = select the output you want to edit
                                         the "active" output is marked by an underline below
                                         the   or –.
- press ⬤ repeatedly   = toggle between output "on" and output "off"

OUTPUT ROUTING IN THE TWIN MODE

output 1 (or 3) activated:	**A** side routed to output 1 (or 3), **B** side routed to output 2 (or 4)	**STEREO**
output 2 (or 4) activated:	**A** side routed to output 2 (or 4), **B** side routed to output 1 (or 3)	**STEREO**
output 1 and 2 activated:	**A** side <u>and</u> the **B** side of a voice routed to both outputs 1 and 2	**MONO**
output 3 and 4 activated:	**A** side <u>and</u> the **B** side of a voice routed to both outputs 3 and 4	**MONO**

note: Changes in a MULTI are stored without confirmation, however when you are changing a patch number and remain in the screen above (Patch Nr. 22 highlighted) the storage is not yet done.

It is good practice to go out of this screen by pressing ✖ as the changed patch number(s) are then actually saved.

THE TOOLS MENU

```
┌─────────────────────────────┬──────┐
│ Midi tester                 │ SETUP│
│ MULTI Copy      :           │ MULTI│
│ Calibration     :           │ PATCH│
│ Get Version     :           │ TOOLS│
│ ScreenContrast  :           │░░░░░░│
├─────────────────────────────┴──────┤
│ MULTI-01 START      TWIN-MODE      │
└─────────────────────────────┬──────┘
```

page: Tools Menu

selected: Midi Tester

MIDI tester: monitors incoming MIDI data

```
┌─────────────────────────────┬──────┐
│ MIDI  CH  NUM  VAL  EVENT   │ SETUP│
│ ON OFF 01 059 000 0030      │ MULTI│
│ AFTER  01         0014  058 │ PATCH│
│ CONTRL 01 032 000 0020      │ TOOLS│
│ PATCH  01 003     0001      │░░░░░░│
│ PITCH  01 064 000 0118 6 057│      │
├─────────────────────────────┴──────┤
│ MULTI-01 START      TWIN-MODE      │
└─────────────────────────────┬──────┘
```

The MIDI tester is an aid for the user to see what is happening on all the MIDI-channels. MIDI messages are distinctively displayed. (NOTE-ON, NOTE-OFF, AFTERTOUCH, MIDI-CONTROLLER, PATCH-CHANGE, PITCH-BEND, and CHANNEL-PRESSURE).
The **EVENT** column counts how many times the type of MIDI message occurred.
On the right/bottom side of the MIDI tester screen MIDI system messages are shown. In this case the display "**6 057X**" means that the connected keyboard is active.
In case of a SYSTEM EXCLUSIVE message the first three data bytes are displayed, showing the manufactorers ID#.

- press ▲ or ▼ repeatedly until "Midi Tester" is highlighted.

❖ press ●   = enter the MIDI tester.
and

❖ press ● again to clear the MIDI tester incoming data from the screen.

- press ✖   = leave the TOOLS menu.

Get Version

- press ▲ or ▼ repeatedly until "Get Version" is highlighted
- press ●   = present software version will be diplayed
- press ✖   = leave the TOOLS menu.

MULTI copy: copy a MULTI

```
Midi Tester                          SETUP  HOT
MULTI Copy     : 01  --> 02          MULTI
Calibration    :                     PATCH   ↑
Get Version    :                     TOOLS
ScreenContrast :                     ████████
MULTI-01 START              TWIN-MODE
```
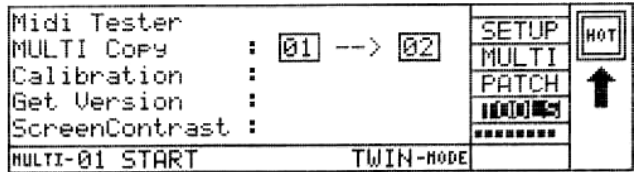
- press ▲ or ▼ repeatedly until "MULTI Copy" is highlighted
- press ● = A numbered box and empty box appears.

❖ press □ > ◄ or □ > ◄ repeatedly = change the present parameter value
or
turn the dataknob = change the present parameter value

Press ● successively and change the two boxed numbers as shown in the picture. The HOT > ◄
softkey confirms the execution of copying MULTI **01** to **02**.
In this example MULTI Nr. **01** is copied to MULTI Nr. **02**. MULTI Nr. **02** is overwritten, so take care|

Calibration

- press ▲ or ▼ repeatedly until "Calibration" is highlighted
- press ● = Calibration starts running.

note: Use calibration only when the synthesizer is switched on for at least 10 minutes. Calibration is only needed when the synthesizer is placed in another room with different temperature, or change in climate.

Adjust the contrast of the screen (display)

- press ▲ or ▼ repeatedly until "ScreenContrast" is highlighted.

- press ● = entering the parameter value.

- press □ > ◄ or □ > ◄ repeatedly = select the desired value.

- press ✖ = leave the TOOLS menu.

PATCH EDITOR: BASIC OPERATION

Introduction

If you want to make a new patch or modify an already existing patch, the Patch Editor must be invoked. The Patch Editor will take the HOUND out of it's MULTI-TIMBRAL state and force it into a so called OMNI state**:**

1. Only one patch can be heard namely the patch you want to edit. The original TWIN- or SOLE-mode is overruled. The patch is always heard in TWIN-mode and routed to **output1** and **output2**.
2. The HOUND responds on all MIDI-channels equally. This is the OMNI state.

Editing a patch is always done in TWIN mode. Even if you want to edit a patch for SOLE mode you have to edit it in TWIN mode. The Patch Editor divides the patch into two parts**:**

part **A**	normally assigned to output 1 (= left)
part **B**	normally assigned to output 2 (= right)

At any time you can edit part **A**, part **B**, or **AB** simultanously. The part **A** is what you normally hear in the SOLE mode. In TWIN mode part **B** is also available, but the price to be payed is cutting the number of voices in half.

It is advised that you edit **AB** simultanously whenever possible. All changes made to part **A** are automatically changed in part **B** as well (see page 30, the main page).

You can edit part **B** later to make a sound more stereo like when used in TWIN mode. You can detune DCO's a little bit, or delay the attack's of one or more ENV's. A patch will however basically sound the same in both SOLE- and TWIN- mode.

You can even go further by using extended properties only involved when used in TWIN mode. Those properties disables the patch for use in SOLE mode. The patch will sound unexpected because internal wiring between part **A** and part **B** is not supported.

The following extended properties are**:**

1. DCO's are distributed equally. Part **A** has DCO1 & DCO2, part **B** has DCO3 & DCO4. This can be overruled. For instance you can put all 4 DCO's on part **A**.

2. The output of VCF-A can be connected to the input of VCF-B thus putting both filters in series.

3. By inverting the VCF-A both outputs **A** and **B** can be substracted to make thin sounding patches.

4. The FM expands from DCO1 → DCO2 for part **A** (and dco3 → dco4 for part **B**) to**:**

- DCO1 → DCO2 → DCO4
- (DCO2 + DCO3) → DCO4

Diagram
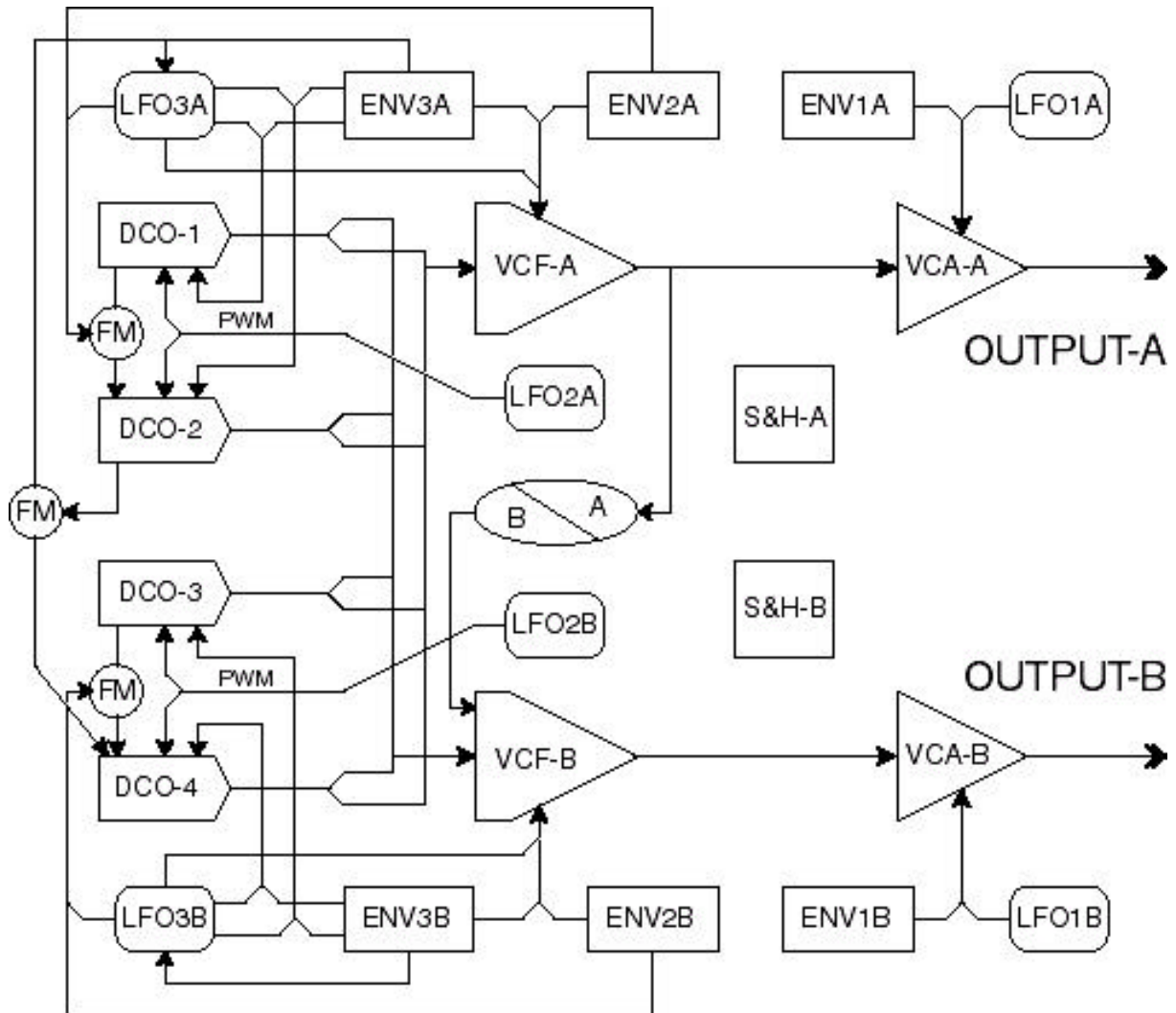
The diagram shows what is actually in a patch. Both part **A** and part **B** are shown. By drawing a horizontal imaginary line from [FM], [B\A] and in between both S&H's you can see the scope of the extended properties only available in TWIN mode.

For clarity sake the S&H's spiderweb like wiring is not drawn.

Entering the patch editor

```
021  SQUARE         -V    SETUP   ⬆
022  PULSE CHORDS   -V    MULTI
023  PWM HEAVY      -V    PATCH
024  DOUBLE SHORT   -V    TOOLS
025  SYNTH BRASS 1  -V    ▪▪▪▪▪▪▪▪  ⬇
MULTI-01 START          TWIN-MODE
```
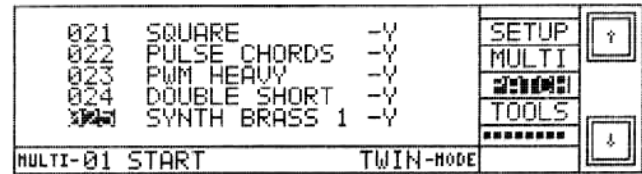
page: patch list

selected: patch nr. 25

When in the HOUND's openingpage, entering the Patch Editor is being done via the patchlist.

• select "PATCH" and press   🔴   = the patchlist appears.

• select a patch nr. and press   🔴   = the **main page** of the patch editor appears.

note: When you select a patch using both softkeys ⬆ **>** ◀ *or* ⬇ **>** ◀ *, the patches will scroll 10 nrs. at the time.*

The patchlist is like a porch for the real Patch Editor. You can prelisten the patches here.

note: When the HOUND was in TWIN mode you will hear it in STEREO on OUTPUT1 and OUTPUT2. When previously in SOLE mode you will hear it in MONO on OUTPUT1 and OUTPUT2.

```
PATCH EDITOR⎵025  SYNTH BRASS 1 -V EDIT AB
FILE                                 A B
DCO
LFO
VCA
ENV
LFO                             STEREO SET
AUX
```
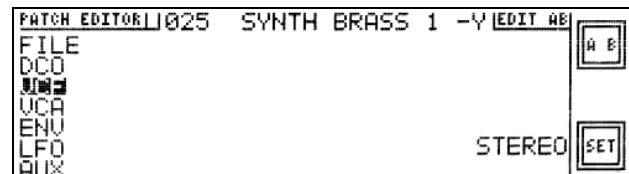
*page: **main page***

The main page.

The the text "stereo" left of the softkey **SET** **>** ◀ shows that the current patch is heard in stereo. By pressing **SET** **>** ◀ you can toggle between "mono" and "stereo". This is no property belonging to the patch itself and is therefore not stored.

At the topline on the display there is a small empty square visual right of the text "PATCH EDITOR". As long as no changes are made on the patch it stays empty. When leaving the Patch Editor no saving is done as no changes are made.
When a change on the patch occurs the square is filled. It is now no longer possible to leave the Patch Editor directly. When an attempt is made to do so, a dialog page appears with the explicit question if leaving without saving is what you really want.

note: In the proces of editing the patch a number of pages will occurr on the screen. To facilitate traveling between pages this will be remembered, and stored when the patch is saved. So when you want to edit a certain patch you can walk almost blindly into the last thing you have been working on.

Leaving the patch editor

There are two situtations possible before leaving the patch editor.

1. You have not changed anything in the patch so there is no necessity for saving the patch:

    - Press ☒ while in the **main page** = The patch list page appears, choose either to edit another patch or to leave the **PATCH LIST** and go back to the HOUND's opening page.

    - press ☒ while in the **PATCH LIST** page = You're back in the HOUND's openingpage.

```
PATCH EDITOR▪025   SYNTH BRASS 1  -Y EDIT AB      A B
FILE SAVE
DCO  NAME        Save the Patch First !
VCF
VCA
ENV          To get out of here
LFO          WITHOUT SAVING Press [YES]      YES
AUX
```
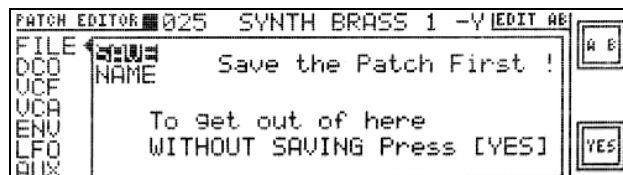
2. You have made changes to the patch and you are guided to the FILE section page:

    - press ☒ while in the main page = You are guided to the FILE section and a dialog page appears. Save the patch (see page …) and you return to the patchlist.

    - press **YES** > ◄ = The patch list page appears choose either to edit another patch or to leave the patch list and go back to the HOUND's opening page.

    - press ☒ while in the **PATCH LIST** page = You're back in the HOUND's openingpage.

note: Saving a patch: see page 42 (FILE   saving a patch)

note: Renaming a patch: see page 43 (FILE   renaming a patch)

Describing the pages

Introduction

In general, in the patch editor there are three levels of pages.

MAIN page	=	The patch editor's opening/exit page and the "entrance" to the section pages and the VCA EDITING page. No parameter changes can be made here but you can toggle between mono and stereo.
SECTION pages (6x)	=	The "main" pages of a section and "entrances" to the relevant editing pages. In general, no parameter changes can be made here.
EDITING pages (20x)	=	The actual editing pages where most of the parameter values can be changed.

all pages in the patch editor:

6 section pages:	*20 editing pages:*	*description of the editing pages:*
MAIN page ----➡ FILE ------------➡	SAVE	save patch at new location
------------➡	NAME	(re)naming a patch
----➡ DCO ------------➡	WAVE	DCO waveform settings etc. (2+2 DCO's)
------------➡	TUNE	DCO tuning (2+2 DCO's)
------------➡	FM	frequency modulation
------------➡	PWM	pulse width modulation
----➡ VCF ------------➡	FREQ	cutoff frequency
------------➡	RES	resonance
------------➡	FAT	fatness
------------➡	A ➔ B	output VCF/A into VCF/B (TWIN mode)
----------------------------➡	VCA	volume control
----➡ ENV ------------➡	ENV1-VCA	attack, decay, sustain, release, delay
------------➡	ENV2-VCF	attack, decay, sustain, release, delay
------------➡	ENV3-GEN	attack, decay, sustain, release, delay
----➡ LFO ------------➡	LFO1-PITCH	speed control
------------➡	LFO2-PWM	speed control
------------➡	LFO3-GEN	speed control
----➡ AUX ------------➡	PITCH	pitch bend + vibrato
------------➡	PORTAM	portamento, time and on/off
------------➡	S & H	sample and hold settings
------------➡	PEDAL	pedal settings
------------➡	STRIP	set parameter values to default

The Main Page
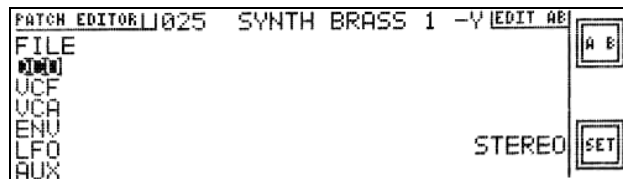
```
PATCH EDITOR 025  SYNTH BRASS 1 -Y EDIT AB
FILE                                    A B
DCO
VCF
VCA
ENV
LFO                              STEREO SET
AUX
```
selected: DCO

➡️ *PATCH EDITOR*

"crossroads"

The MAIN page represents the "crossroads" of the patch editor. Besides being the opening/exit page, "travelling" from one section to another can be done via the MAIN page. The names of the sections displayed in the column in the MAIN page represent "doors" to the SECTION pages.
Sections are grouped in a column (**sections column**): FILE, DCO, VCF, VCA, ENV, LFO, AUX.

❖ select a section and press   🔘   = go to the relevant SECTION page
or
❖ leave the patch editor *(leaving the patch editor, see page 28)*

note:

The VCA section has no SECTION page of it's own. When you select "VCA" you enter the VCA's EDITING page directly.

*Edit in **A**, **B**, or **AB***

• press upper A-B > ◀ repeatedly   = change from EDIT-**A**, EDIT-**B**, EDIT-**AB**.

Play the present patch in MONO/STEREO

Only in the MAIN page, the MONO/STEREO can be altered. A patch is heard on output1 and output2 in MONO or STEREO.

• press lower SET > ◀ repeatedly   = change from MONO to STEREO and reversely.

The Section Pages

➡*PATCH EDITOR*➡*FILE*
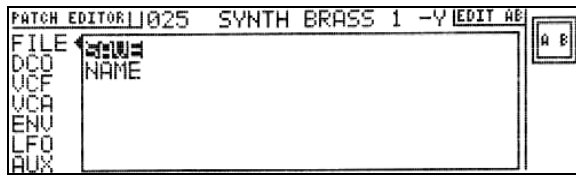
```
PATCH EDITOR⌐025   SYNTH BRASS 1 -Y EDIT AB     A B
FILE SAVE
DCO  NAME
VCF
VCA
ENV
LFO
AUX
```
selected: SAVE

➡*PATCH EDITOR*➡*DCO*
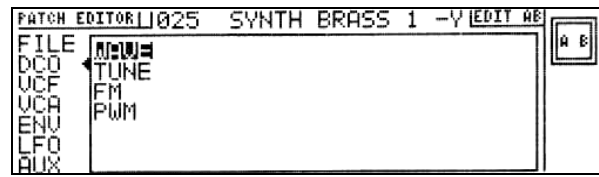
```
PATCH EDITOR⌐025   SYNTH BRASS 1 -Y EDIT AB     A B
FILE WAVE
DCO ◄TUNE
VCF  FM
VCA  PWM
ENV
LFO
AUX
```
selected: WAVE

➡*PATCH EDITOR*➡*VCF*
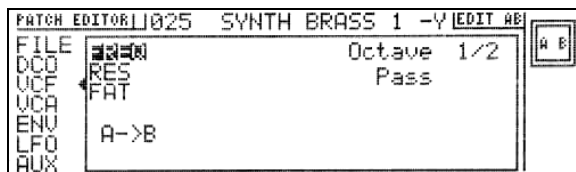
```
PATCH EDITOR⌐025   SYNTH BRASS 1 -Y EDIT AB     A B
FILE FREQ              Octave  1/2
DCO  RES
VCF ◄FAT                   Pass
VCA
ENV  A->B
LFO
AUX
```
selected: FREQ

➡*PATCH EDITOR*➡*ENV*
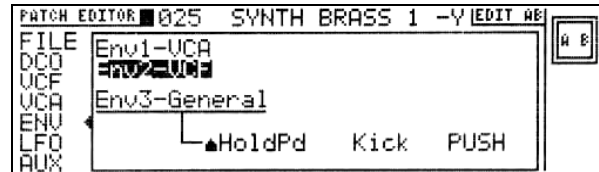
```
PATCH EDITOR■025   SYNTH BRASS 1 -Y EDIT AB     A B
FILE Env1-VCA
DCO  Env2-VCF
VCF
VCA  Env3-General
ENV ◄
LFO       └▲HoldPd   Kick   PUSH
AUX
```
selected: Env2-VCF

➡*PATCH EDITOR*➡*LFO*

```
PATCH EDITOR⌐025   SYNTH BRASS 1 -Y EDIT AB     A B
FILE LFO1-Vibrato-Tremolo
DCO  LFO2-PWM
VCF
VCA  LFO3-General
ENV
LFO ◄      └─FreeRun  Triangle
AUX
```
selected: LFO1

➡*PATCH EDITOR*➡*AUX*
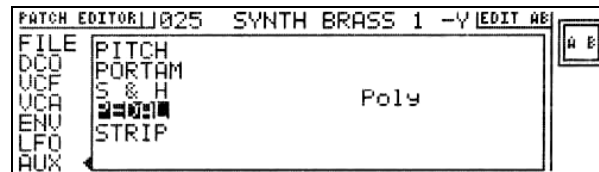
```
PATCH EDITOR⌐025   SYNTH BRASS 1 -Y EDIT AB     A B
FILE PITCH
DCO  PORTAM
VCF  S & H
VCA  PEDAL          Poly
ENV
LFO  STRIP
AUX
```
selected: PEDAL

The "**sections column**" of the MAIN page will always remain visible at the left side of a SECTION page, in fact, the actual SECTION page is displayed in a **frame** within the page.

A " ◄ " at the left side of the **frame** points to the name of the section being edited. Left in the **frame**, you see a list of items, representing the "doors" to the actual EDITING pages.

The SECTION page represents the "opening page" of a section and leads to the section's EDITING pages. No parameter changes can be made here, except in the SECTION pages "VCF", "ENV" and "LFO".

❖ select an item and press   🔴   = go to the relevant EDITING page.
or
❖ press   ❌   = leave the section page and go back to the MAIN page.

Standard Editing Pages: introduction and functions column

Introduction

When entering an EDITING page you'll see that the "**sections column**" of the MAIN page remains visible, so you'll always know which section is being edited. The actual EDITING page appears in a **frame**. At the top left in the **frame** the name of the item being edited is visible.

➡ *PATCH EDITOR*➡*VCF*➡*FREQ*

selected: cuttoff frequency: manual amount, basic value

Most editing pages (except all "FILE" and "AUX" pages and the pages DCO/WAVE and DCO/TUNE) look more or less like the example above: the VCF/FREQ page. In this particular page all parameters concerning the VCF cutoff frequency are displayed.

In an editing page generally all parameters which are relevant to an item are implemented. Changing the parameter values is done in the same way throughout all of these pages.

E.g.: in the "FREQ" page, all implemented parameters effecting the cutoff frequency of the VCF can be edited.

- press   ❌   = leave the EDITING page and go back to the SECTION page.

The function column

The left column in the **frame** (the function column) refers to the manual setting and the "modulators". Up to 3 kinds of modulators can effect the "item" of the page. Modulators are: all Envelope Generators, all Low Frequency Oscillators, and MIDI controllers.

Manual	= the main setting for frequency modulation
[ENV]	= cutoff frequency modulated by an Envelope Generator
[LFO]	= cutoff frequency modulated by a Low Frequency Oscillator
⅄Expres	= cutoff frequency modulated by a MIDI controller, in this example done by MIDI controller 11 (Expression)

More than one Envelope Generator or MIDI controller can be implemented in an EDITING page. In the example above, two Envelope Generators are present.

When an item is presented between square brackets (e.g.: [ENV3]), it functions as a "shortcut". From here you can go directy to another (relevant) page.

note: Details about shortcuts, see page 39 (shortcuts)

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

Standard Editing Pages: parameter columns

```
PATCH EDITOR|025  SYNTH BRASS 1 -V|EDIT AB|
FILE ■ FREQ ■BASIC    NOTE   VELOC   AFTER    A B
DCO  Manual :3121                     000
VCF  [ENV2] +047   ■000  +098
VCA  [ENV3] +049    000  +067
ENV  [LFO3]  000                      000
LFO
AUX  Expres: 000                             CLR
```

selected: cuttoff freq. modulation by ENV2,
             influenced by MIDI note nr.

➡PATCH EDITOR➡VCF➡FREQ

Right of the "manual and modulators" column and right of the dotted line, 4 columns are present. In each column, relevant parameters are implemented which effect the item of the EDITING page. The 4 colums are named: "BASIC", "NOTE", "VELOC" and "AFTER".

1. BASIC   = all basic settings for manual value and modulation depth.

The other three columns <u>can</u> contain parameters which influence the fixed values set in the BASIC column.

2. NOTE   = manual value and modulation depth **influenced** by note number.
3. VELOC   = manual value and modulation depth **influenced** by velocity.
4. AFTER   = manual value and modulation depth **influenced** by aftertouch.

note: in the Envelope EDITING pages "after" is replaced by "r-vel" (release velocity)

note: MIDI aftertouch is supposed to be polyphonic while MIDI channel pressure is monophonic. They are both supported in the same manner.

All parameters refer to the column as well as the row in which they are in. For instance: the function of the highlighted parameter in the example above is: the amount of influence by **NOTE ON** to the amount of cutoff frequency modulation by Envelope Generator 2.

In these pages, changing parameter values is generally being done using the dataknob.

note: Changing the values, see page 39 (changing numeric parametervalues, <u>standard procedure</u>)

When it makes sence the parameters can be negative as well. Some parameters can have positive or zero value only. The parameters in the column NOTE, VELOC, or AFTER can always be negative too. The principle behind this is that there is a so called **pivot** to the influence of NOTE, VELO, AFTER. The **pivots** are:

- NOTE = Middle C played (center of the keyboard).
- VELO = Playing a note with average velocity.
- AFTER = Zero aftertouch.

When a parameter in the so called "influence" columns are adjusted and the playing is "average" done, there will be no change. But a positive change of a parameter will make for instance hard played notes sound harder, and soft played notes softer. Whe the parameter is adjusted negative, this will be reversed. In case of a hard played note, it will sound (unnatural) soft, and vice verse.

Non standard Editing Pages

14 EDITING pages don't look like standard EDITING pages, because of their specialized nature. These pages are being descibed page by page in the next chapter: "Patch editor: all parameters"

In these pages, changing parameters is generally being done using the ⬤ key or softkey REV > ◄ (increment or decrement parameter value) instead of using the dataknob.

Details, see pages:	*42*	*(FILE Saving a patch)*
	43	*(FILE Renaming a patch)*
	44	*(DCO allocation to A or B)*
	45	*(DCO waveshape)*
	46	*(DCO "peer")*
	47	*(DCO synchronizing DCO's)*
	48	*(DCO relative volume)*
	49	*(DCO tuning)*
	52	*(VCF filter modes)*
	58	*(ENV ENV3 triggering)*
	60	*(LFO LFO3 mode & wave)*
	62	*(AUX pitch bend and vibrato)*
	63	*(AUX portamento)*
	64	*(AUX sample and hold)*
	65	*(AUX pedal)*
	66	*(AUX strip)*

Navigating pages: Standard procedure

As seen in the previous paragraphes, the pages of the patch editor are grouped into three levels:

- MAIN page
- SECTION pages
- EDITING pages

Navigating is normally done by going from one level to another, for instance:

Going from the main page to a section page:

- select the item representing the "door" to the section page
- press   = go to the requested section.

Going from a section page to an editing page:

- select the item representing the "door" to the editing page
- press   = go to the requested editing page.

Leaving an editing page and going back to the section page:

- press   = go back to the section page.

Leaving a section page and going back to the main page:

- press   = go back to the main page.

note: PATH:

How to travel to a certain page can be seen in the "path". The path represents the route to be taken in order to get to the desired page, when starting in the patch editor's main page. For instance, the path to page where all of the VCF's cutoff frequency parameters are located, is represented as:

➡patch editor➡vcf➡freq

Navigating pages: Shortcuts

```
PATCH EDITOR 025   SYNTH BRASS 1  -Y EDIT AB
FILE  ■ FREQ ■ BASIC    NOTE    VELOC   AFTER    A B
DCO   Manual 3121                        000
VCF ◄ ▌▛▀▜▌ +047    000    +098
VCA   [ENV3] +049    000    +067
ENV   [LFO3]  000                        000
LFO
AUX   ⟨Expres  000
```

➡PATCH EDITOR➡VCF➡FREQ

selected: shortcut to ENV2 = [ENV2]

Normally, when going from one section to another, you must "travel" via the MAIN page of the patch editor. However, when in one of the EDITING pages listed below, you can travel via **shortcuts** to the EDITING pages of relevant Envelope Generators and Low Frequency Oscillators.
When an item's name is displayed between square brackets, it functions as a shortcut as well. In the example, [ENV] and [LFO] represent shortcuts.

- Select a shortcut and press   🔴   = go directly to the EDITING page of the particular section.

All shortcuts

in page:	shortcuts lead to:
DCO/FM	ENV2, LFO3, (ENV3)
DCO/PWM	ENV3, LFO2
VCF/FREQ	ENV2, ENV3, LFO3
VCF/RES	ENV2, LFO3
VCF/FAT	ENV2
VCA	ENV1, LFO1
LFO3	ENV3

MIDI controlled modulation: assignment

The HOUND recognizes 14 MIDI controllers and the Pitch Bend wheel. Each patch can operate with 11 controllers simultaniously, to be selected from among the 14 controllers + the PB wheel. Of course, each patch has it's own controller assignment.

➡PATCH EDITOR➡VCF➡FREQ

selected: MIDI controller ⊼Expres

Where implemented in a patch, the MIDI controller name appears in the EDITING screen at the relevant location, beneath Manual, [ENV] or [LFO], recognizable by it's name, preceded by a "⊼" (continuous modulation) or a "▲" (pedal: "on/off modulation"), the Pitch Bend Wheel is preceded by: "♩"

Of course, it's possible to change the active controller. Feel free to assign any continuous or pedal controller where you want. For instance, it is even possible to use a pedal controller for the pitch bend function. Whether the active controller is a continous or pedal controller is explained by the symbol preceding the controller's name.

Changing the active controller:

* select the controller name

* press 🔴 or lower REV > ◀ repeatedly   =   select a new controller (15 options)

note: The MIDI Pitch Bend Wheel is not a MIDI Controller. MIDI controllers work only in one direction namely upwards. The Pitch Bend works both upwards and downwards as it is meant to be on bending the pitch.

The Hound takes the Pitch Bend as a controller. It will still work as (upwards/downwards) pitchbend, but when assigned to other controller functions in the Hound it still works in bothe directions.

When for instance the MIDI Expression is used to push the VCF freq upwards it is possible to select the pitch bend instead, allowing to push the VCF freq both upwards and downwards using the Pitch Bend wheel.

MIDI controlled modulation: all controllers

Summary of modulation locations where a MIDI controller can be assigned:

EDITING page:		Default name:		function:
DCO/TUNE	-	♫Breath	=	DCO tuning modulation (DCO1/3 and DCO2/4 separately)
DCO/FM	-	♫Breath	=	DCO FM (DCO1 → DCO2 and DCO3 → DCO4)
DCO/PWM	-	♫Breath	=	Pulse Width modulation (DCO 1+2 / 3+4)
VCF/FREQ	-	♫Expres	=	cut off frequency modulation
VCF/RES (1st ctrl.)	-	♫Expres	=	resonance modulation
VCF/RES (2nd ctrl.)	-	♫Foot-C	=	resonance modulation
VCF/FAT	-	♫Expres	=	fatness modulation
VCA (1st ctrl.)	-	♫Expres	=	volume modulation
VCA (2nd ctrl.)	-	♫Volume	=	MIDI controlled volume, MIDI ctrl.nr. # 7 recommended
LFO1	-	♫FXcon1	=	speed modulation
LFO2	-	♫FXcon1	=	speed modulation
LFO3	-	♫FXcon1	=	speed modulation
AUX/PITCH	-	♫Modwhl	=	pitch modulation (vibrato)
AUX/PORTAM	-	♫P-time	=	portamento time modulation
AUX/S & H	-	♫Foot-C	=	S & H amplitude
AUX/PITCH	-	♩PiBEND	=	pitch bend control
AUX/PORTAM	-	♠Po.Swi	=	pedal function: portamento on/off
AUX/PEDAL	-	♠SustPd	=	pedal function: sustain (MIDI ctrl.nr. # 64 recommended)
AUX/PEDAL and ENV3	-	♠HoldPd	=	pedal function: ENV3 triggering (instead of "note on")

Default controller names

The summary shows that some default names seem to appear on different places. When they are given a different name and thus given another MIDI controller, this will change in the according EDITING pages as well.

Each different Patch can have its own set of MIDI controllers.

The ➥PATCH EDITOR➥AUX➥STRIP PAGE (*see page 68*) has an item to set the names to **default**.

Default MIDI controllers

In the SETUP sub menu "MIDI controllers", accessible through the opening screen, a choise has been made to make a selection of 15 MIDI controllers out of 64 MIDI controllers, including the Pitch Bend (which is not a MIDI controller but acts like one). Normally the **default** list is assembled (*see page 16 how to do this*) resulting in the names shown in the summary.

When the list of MIDI controllers is extensively modified in the SETUP (this is only adviced for experienced users) a completely different choise list occurs (with names like —23— or Sound5) in all the patches you edit.

Once a list has been made in the SETUP, the MIDI controllers in it are the MIDI controllers available in each Patch.

In order to get the list above there has to be made a **default** in the Patch you Edit, and the MIDI controller list must be set to **default** in the SETUP for the entire synthesizer

Changing parameter values : standard procedure

➡PATCH EDITOR➡VCF➡FREQ
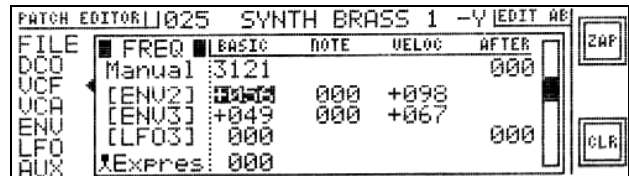
selected: modulationdepth by ENV2, basic value
softkeys: ZAP and CLR active
graphic bar displayed, representing the value +056

Changing the value

After selecting a parameter there are three ways to start altering the selected value.
In all three cases a graphical bar will appear right in the screen and the softkey functions will change to
ZAP > ◀ and CLR > ◀ .

❶   turn the dataknob   =   the value changes accordingly
or
❷   press lower CLR > ◀   =   the value will reset on zero
or
❸   press ⬤   =   the value remains unchanged

graphic bar:
The graphic bar represents a graphical display of the value of the parameter.

softkeys:
♦   press upper   ZAP > ◀   =   the value changes to its original and the softkey,
                                                              changes to ↓↓↓

♦   press lower   ↓↓↓ > ◀   =   the value will change back to the altered value and
                                                              the softkey changes to ZAP .

Leaving the active parameter

The are three ways to leave the active parameter. In each way the graphic bar will disappear.

❶   press ✖   =   accept the value and move to previous page.
❷   press ▲ or ▼   =   accept the value and move to next/previous
                                                              parameter.
❸   Press ⬤   =   accept the value, but stay put on the selection.

note: When the graphic bar is visual keep in mind that the ↓↓↓ > ◀ softkey refers to the previous
        value.

note: When the graphic bar is being displayed pressing ⬤ accepts the value stated by ↓↓↓ or ZAP

note: Changes will only be permanently stored when a patch is being saved, see page 40 (saving a
        patch)

Basic operation, example

Let's say we want to edit patch nr 25.

we want to change:
    1   the value of the ENV2 modulation to the VCF cutoff frequency
    2   the value of the sustain level of ENV 2
    3   the waveform of DCO 2
    4   the patchname
    5   present patch location (save to nr. 44)

in this example:	*"select"*	=	*select an item using the cursorkeys*
	"go to"	=	*select an item using the cursorkeys and press* 🔴
	"leave"	=	*press* ❌
	(+ softkeys)	=	*selecting an item: softkeys instead of cursorkeys possible*

- start in the HOUND's opening page
- go to PATCH   = go to the patchlist
- go to pach nr. 25 (+ softkeys) = go to the MAIN page of the patch editor
- go to VCF   = go to the VCF section page
- go to FREQ   = go to the VCF/FREQ editing page
- go to parameter right of "[ENV2] = parameter ready for editing
- change value using the dataknob = value changed, graphic bar active
- go to [ENV2] (=shortcut !)   = go to the ENV/ENV2 editing page
- go to parameter right of "sustain" = parameter ready for editing
- change value using the dataknob = value changed, graphic bar active
- leave the ENV2 page   = go to the previous page (VCF/FREQ)
- leave the FREQ page   = go back to the VCF section page
- leave the VCF page   = go to the MAIN page
- go to DCO   = go to the DCO section page
- go to WAVE   = go to the DCO/WAVE editing page
- select "wave" of DCO 2   = parameter ready for editing
- change value using the ENTER key = 6 possible values including "disable"
- leave the DCO/WAVE page   = go back to the DCO section page
- leave the DCO page   = go back to the MAIN page
- go to FILE   = go to the FILE section page
- go to NAME   = go to the FILE/NAME editing page
  the first character position will be ready for editing
- change the first character by using the dataknob and/or the softkeys
- select all other character positions and change characters
- press the ENTER key   = renaming is confirmed
- go to SAVE   = go to the patchlist
- go to patch nr. 44 (+ softkeys) = go to the dialog page
- press softkey HOT   = the patch is now changed, renamed and saved at
  the desired location
- leave the FILE page   = go to MAIN page
- leave the MAIN page   = go to the patchlist
- leave the patchlist   = go to the HOUND's opening page

THE <u>PATCH EDITOR:</u> ALL PARAMETERS

Introduction

In this chapter all parameters present in a patch are being explained.

At the beginning of each paragraph a picture is displayed, representing the page that is being explained. How to get to that page can be seen in the "path", presented left of the picture. The startpoint of the path is: ➡*PATCH EDITOR.*

note: Details on "path" and navigating pages, see page 35 (Navigating pages)

note: Survey of all pages, see page 29 (Describing the pages)

note: "select" = press ▼ and/or ▲ repeatedly until the desired item or parameter is highlighted.

FILE: saving a patch

➡*PATCH EDITOR*➡*FILE*➡*SAVE* *(patchlist)*
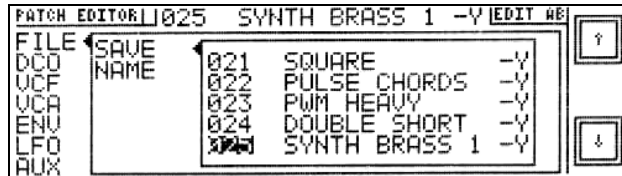
selected: patch nr. 25 (= SYNTH BRASS 1)

When selecting the "SAVE" editing page, first the patchlist is being displayed. Select the desired saving location to save the patch. This can be done in 2 ways:

❖   press   ▼ or ▲   =   move up/down one patch nr. at the time.
or
❖   press   ⬆ > ◀ or ⬇ > ◀   =   move up/down 10 patch nrs.at the time.

note: Pressing & holding the keys will activate continously scrolling through the patchlist.

After selecting the desired location, go to the "save" dialog page in order to confirm saving the patch.

•   press   ⬤   =   go to the "save" dialog page.
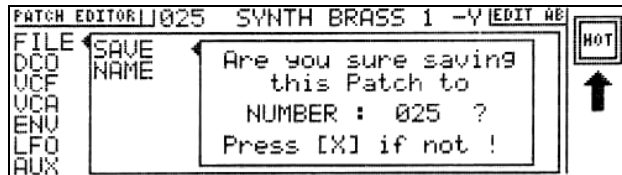
➡*PATCH EDITOR*➡*FILE*➡*SAVE* *(dialog page)*

When in the dialog page you have 2 options: either you confirm saving the patch and overwrite the present patch or you leave the dialog page and avoid the saving procedure.

❖   press   ◀   =   save the patch and go back to the "FILE" page.
or
❖   press   ✕   =   avoid undo save and go back to the "FILE" page.

note: At this point you can decide to do more editing or eventually leave the patch editor through the MAIN page.

FILE: renaming a patch

➡*PATCH EDITOR*➡*FILE*➡*NAME*

The first character of the patchname is already automatically selected after entering this page.
Available characters are in order of appearance:

! " # & < = > ( ) * + , - . /   0123456789   ABCDEFGHIJKLMNOPQRSTUVWXYZ.

- press   □ > ◀ or □ > ◀   =   change characters, go to the next/previous character.

- turn dataknob   =   change characters, go to the next/previous character.

- press   ▼ or ▲   =   go to the next/previous character position.

After having renamed the patch:

❖ press   ●   =   confirm renaming the patch, go back to the "FILE" page
or
❖ press   ✖   =   deny renaming the patch,   go back to the "FILE" page

DCO: allocation ("voice")   (TWIN mode only)

➡PATCH EDITOR➡DCO➡WAVE (edit AB)   ➡PATCH EDITOR➡DCO➡WAVE (edit B)
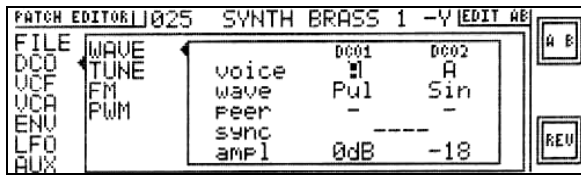
selected: DCO1 routed to the A side   selected: DCO3 routed to the B side
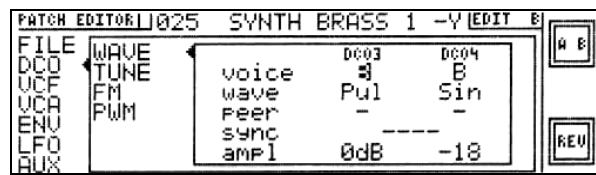
The "Voice" parameters select the assignment of each DCO. When in the TWIN MODE, each of the four DCO's can be assigned to either the A-side or the B-side of the voice. In this way you can create a thick and/or complicated mono sound with 4 DCO's.

If you change the play mode to "SOLE" (after leaving the patch editor), DCO3 and DCO4 are temporarily being disabled and DCO 1 and DCO 2 are temporarily reassigned to the A-side. In fact, when in the SOLE mode, DCO 3 and DCO 4 as well as the DCO allocation routine "don't exist".

note: When in the patch editor, the HOUND always operates in the TWIN mode.

- select the parameter value (A or B) in the column of the DCO you want to reassign

- press ⬛   = change assignment of each DCO.

in edit mode A: change assignment of DCO1 and DCO2
in edit mode B: change assignment of DCO3 and DCO4
in edit mode AB: change parameter values of DCO1/DCO3 and DCO2/DCO4

note: In editmode AB the DCO2/DCO4 set is not visible but the changes are definitely made.

DCO: waveshape ("wave")

```
PATCH EDITOR||025   SYNTH BRASS 1  -Y EDIT AB
FILE  WAVE                    DCO1      DCO2        A B
DCO   TUNE        voice        A         A
VCF   FM          wave        Pul       Sin
VCA   PWM         peer         -         -
ENV               sync        -----                REV
LFO               ampl        0dB       -18
AUX
```

selected: for DCO1: pulsewave

➡ *PATCH EDITOR*➡*DCO*➡*WAVE (edit AB)*

The "Wave" parameters select the waveshape of the DCO's. For each of the 4 DCO's one of four waveshapes can be selected or the DCO can be disabled.

	=	the DCO is disabled
Sin	=	sine wave
Pul	=	(variable) pulse or square wave
Saw	=	sawtooth wave
Tri	=	triangle wave
Noi	=	noise

- select the present parameter value in the column of the DCO you want to edit

- press 🔘 and/or REV > ◀ repeatedly   = the selected waveform changes accordingly

in edit mode A: change parameter values of DCO1 and DCO2
in edit mode B: change parameter values of DCO3 and DCO4
in edit mode AB: change parameter values of DCO1/DCO3 and DCO2/DCO4

note: In editmode AB the DCO2/DCO4 set is not visible but the changes are definitely made.

note: When assigning pulse waves, it is normally recommended to operate with only DCO1 (A side) and DCO3 (B side), in this way you'll get the normal pulse wave sound. However, when DCO3 and DCO4 are also activate and one or two DCO's have a pulse wave assigned to it, the sound gets distorted. This gives the user the ability to make "dirty" sounds.

note: If two DCO's are desired with both a pulse wave selected this is only possible in the TWIN mode.

DCO: "peer"

selected: for DCO1> peer ON

➡️ *PATCH EDITOR* ➡️ *DCO* ➡️ *WAVE*   (edit AB)
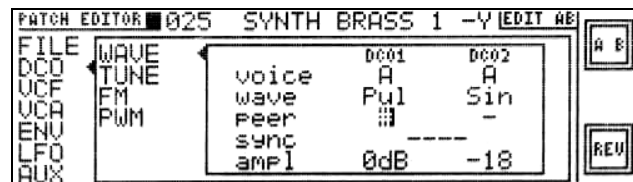
When using 2 or more DCO's with slightly detuned frequencies, the sound becomes a bit "roomy".
Activating "peer" will start the DCO's on the same phase on each played note, in this way you can create
a firm attack.

• select the present parameter value in the column of the DCO you want to edit

• press [⬤] and/or [REV] > [◀] repeatedly   = toggle between peer ON (#) and OFF (–)

in edit mode A: change parameter values of DCO1 and DCO2
in edit mode B: change parameter values of DCO3 and DCO4
in edit mode AB: change parameter values of DCO1/DCO3 and DCO2/DCO4

note: In editmode AB the DCO2/DCO4 set is not visible but the changes are definitely made.

*note: When more than one DCO is used on exactly the same frequency it can happen that they fade out
on a certain voice. You can switch out one (or more) DCO's. You can detune them sligtly or switch the
"peer" on of all concerning DCO's.*

DCO: synchronizing DCO's ("sync")

```
PATCH EDITOR▪025   SYNTH BRASS 1  -Y EDIT AB    A B
FILE WAVE                    DCO1    DCO2
DCO ◄TUNE        voice        A       A
VCF  FM          wave        Pul     Sin
VCA  PWM         peer         #       -
ENV             sync      ▬▬▬▬         REV
LFO             ampl        0dB      -18
AUX
```

➡PATCH EDITOR➡DCO➡WAVE (edit A)
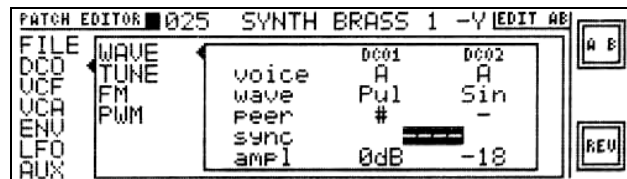
selected: synchronization = OFF

The "Sync" parameter defines in what way the pitch of DCO2 (or DCO4) should be synchronized
to the pitch of DCO1 (or DCO3). Three Sync mode's (including "sync off") are available.

1. **----**   = no synchronization, DCO1 and DCO2 are not synchronized.
2. **soft**   = soft synchronization.
3. **hard**   = hard synchronization.

- select the present Sync mode (----/soft/hard)

- press 🔘 and/or REV > ◀ repeatedly   = change the sync mode accordingly

in edit mode A: change parameter values of DCO1/DCO2
in edit mode B: change parameter values of DCO3/DCO4
in edit mode AB: change parameter values of DCO1/DCO3 & DCO2/DCO4

note: In editmode AB the DCO2/DCO4 set is not visible but the changes are definitely made.

DCO: relative volume ("ampl")

selected: for DCO1: maximum volume

➡PATCH EDITOR➡DCO➡WAVE (edit AB)

The "Ampl" parameter sets the relative output volume of each DCO. Attinuation can be set in 3 dB steps. (0 dB: maximum volume, -39 dB: minimum volume).

- select the present parameter value in the column of the DCO you want to edit

- press 🔴 and/or **REV** > ◀ repeatedly   = change the value accordingly

in edit mode A: change parameter values of DCO1 and DCO2
in edit mode B: change parameter values of DCO3 and DCO4
in edit mode AB: change parameter values of DCO1/DCO3 and DCO2/DCO4

note: In editmode AB the DCO2/DCO4 set is not visible but the changes are definitely made.

DCO: tuning and tuning modulation

➡PATCH EDITOR➡DCO➡TUNE (edit AB)   ➡PATCH EDITOR➡DCO➡TUNE (edit B)
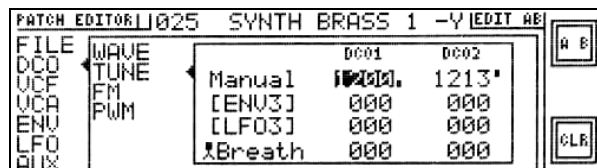
selected: for DCO1> manual tuning = 1200   selected: for DCO3> manual tuning = 1200
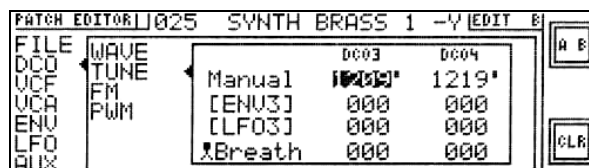
At these 2 pages you can make changes to:

1. fixed DCO frequency tuning   = Manual
2. frequency modulated by ENV 3   = [ENV3]
3. frequency modulated by LFO3   = [LFO3]
4. frequency modulated by a MIDI controller   = ⅄Breath (default assignment)

Shortcuts: **[ENV2], [LFO3]**   *(shortcuts, see page 36)*
Changing all parameter values: standard procedure   *(standard procedure, see page 39)*
                                    <u>except for manual tuning</u>

in edit mode A: change parameter values of DCO1 and DCO2
in edit mode B: change parameter values of DCO3 and DCO4
in edit mode AB: change parameter values of DCO1/DCO3 and DCO2/DCO4

note: In edit mode AB the DCO2/DCO4 set is not visible but the changes are definitely made.

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

note: Normally pitch bend and vibrato can be added to DCO-tuning modulation. These modulation
*   sources work on all DCO's simultaniously and are situated in the AUX section, page 60.*

	parameters DCO1/DCO3:	*parameters DCO2/DCO4:*	*range:*
Manual	basic value	basic value	0/4800
[ENV3]	modulationdepth	modulationdepth	-127/+127
[LFO3]	modulationdepth	modulationdepth	-127/+127
⅄Breath	modulationdepth	modulationdepth	-127/+127

<u>MANUAL TUNING</u>

Each DCO can be tuned in as much as 4800 discrete steps, 100 steps represent a semitone interval, so 1200 steps represent one octave. You can regard this parameter as "two parameters in one", i.e. coarse tuning and fine tuning.

Changing parameter values for DCO1 and DCO2: standard procedure *(see page 36)*,
                                              <u>except for the lower softkey</u>

Lower softkey:
Instead of the normal function CLR > ◀ (= clear value to zero value) the lower softkey function is

changed to RIB > ◀ . When activated, the value changes in 100 interval steps.

DCO: FM

FM is an abbreviation of **F**requency **M**odulation. In it's basic application **DCO1** modulates **DCO2**, and **DCO3** modulates **DCO4**. (**DCO1** → **DCO2**, **DCO3** → **DCO4**)
These basic applications allow the use of both SOLE mode and TWIN mode.

➡*PATCH EDITOR*➡*DCO*➡*FM* (edit A)   ➡*PATCH EDITOR*➡*DCO*➡*FM* (edit B)
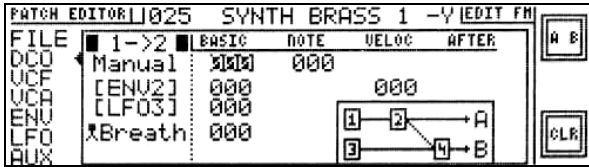
selected: DCO 1>2, FM, manual amount, basic value   selected: DCO 3>4, FM, manual amount, basic value
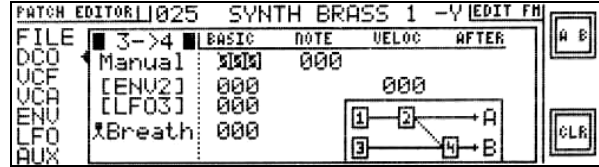
---

note: The text **EDIT AB**, **EDIT A**, and **EDIT B** is replace by **EDIT FM**.

---

note: A small diagram is projected in all screens showing the **FM** between the **DCO**'s.

The pitch of DCO1 (and DCO3) can modulate the pitchcarrier of DCO2 (and DCO4). At these 2 pages you can make changes to:

1. modulation, fixed value   = manual
2. FM depth modulated by ENV 2   = [ENV2]
3. FM depth modulated by LFO3   = [LFO3]

Shortcuts: **[ENV2], [LFO3]**   *(shortcuts, see page 36)*
Changing all parameter values: standard procedure   *(standard procedure, see page 39)*

	parameters:	range:
Manual	basic value	0/255
Manual	basic value affected by note number	-127/+127
[ENV2]	basic value	0/255
	basic value affected by velocity	-127/+127
[LFO3]	basic value	0/255

➡*PATCH EDITOR*➡*DCO*➡*FM* (edit AB)   ➡*PATCH EDITOR*➡*DCO*➡*FM* (edit X)
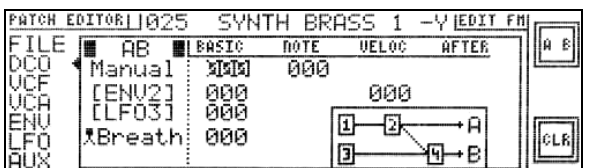
selected: DCO 1>2, DCO 3>4, FM, manual amount, basic value   selected: DCO 2>4, FM, manual amount, basic value

The EDITING page **AB** edits **DCO1** → **DCO2** and **DCO3** → **DCO4** simultanously. However the **A** side is only visual.

The EDITING page **2** → **4** is only valid when used in TWIN mode. You can make two extra adjustments.

1. **DCO1** → **DCO2** → **DCO4**
2. **(DCO2** + **DCO3)** → **DCO4**

	parameters:	range:
Manual	basic value	0/255
[ENV3]	basic value	0/255

DCO: pulse width modulation

```
PATCH EDITOR|025  SYNTH BRASS 1  -V|EDIT AB|      A B
FILE  ▉ PWM  ▉|BASIC    NOTE    VELOC   AFTER
DCO   ◄
VCF     Manual │ ▨▨!    000
VCA   [LFO2] │ 000    000
ENV   [ENV3] │ 000                              CLR
LFO   ⚡Breath│ 000
AUX
```
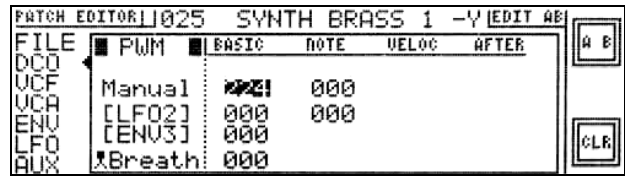
➡PATCH EDITOR➡DCO➡PWM

selected: PWM, manual amount, basic value

The pulse width of the pulse wave can be altered and/or modulated for each DCO separately.

1. pulse width, fixed value   = Manual, square (50%) to sharp pulse (95%)
2. pulse width modulated by ENV 2   = [ENV2]
3. pulse width modulated by LFO3   = [LFO3]
4. pulse witdh modulated by MIDI controller = ⚡Breath   (default assignment)

Shortcuts: **[ENV2], [LFO3].**   *(shortcuts, see page 36)*
Changing all parameter values: standard procedure   *(standard procedure, see page 39)*

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

	parameters:	range:
Manual	basic value	0/255
	basic value affected by MIDI note nr.	-127/+127
[ENV2]	basic value	-127/+127
	basic value affected by MIDI note nr.	-127/+127
[LFO3]	basic value	-127/+127
⚡Breath	basic value	-127/+127

VCF: filter modes

```
PATCH EDITOR 025  SYNTH BRASS 1 -V EDIT AB
FILE FREQ              Octave 1/2       A B
DCO  RES
VCF  FAT
VCA
ENV  A->B
LFO
AUX
```
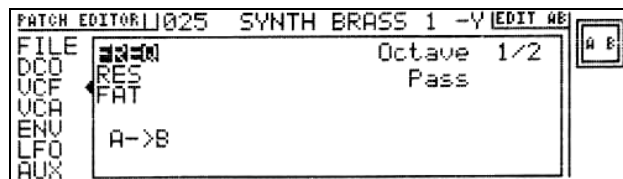
➡PATCH EDITOR➡VCF

selected: FREQ (cut off frequency)

CUT OFF FREQUENCY NOTE TRACKING

The VCF cutoff frequency is controlled by the played note. The controlled scale is selectable (right of the word: "Octave"):

1/1 modulation is: MIDI note nr. full note pitch
1/2 modulation is: MIDI note nr. divided by 2
1/4 modulation is: MIDI note nr. divided by 4
1/8 modulation is: MIDI note nr. divided by 8

- select the present value and press 🔴 repeatedly   = change the value accordingly.

INVERT VCF

The mode of the VCF-A can be changed to "inverted" (INV). The parameter can be found right of the word: "Pass" (only when editing VCF-A).

- select the present value and press 🔴 repeatedly   = change the value accordingly.

❷ BANDPASS VCF

The mode of VCF-B can be changed to "bandpass". The parameter can be found right of the word: "Pass" (only when editing VCF-B).

- select the present value and press 🔴 repeatedly   = change the value accordingly.

note: When editing in editmode AB: "invert" and "bandpass" change simultaniously when changing "---" to "INV".

note: INVERT/BANDPASS is only valid when the synthesizer is used in the TWIN mode.

note: For tips and hints about the use of INVERT/BANDPASS see page 70.

```
PATCH EDITOR  025   SYNTH BRASS 1  -V EDIT AB   A B
FILE  FREQ                  Octave   1/2
DCO   RES                      Pass
VCF  ◄FAT
VCA
ENV   :▬▶◄:
LFO
AUX
```
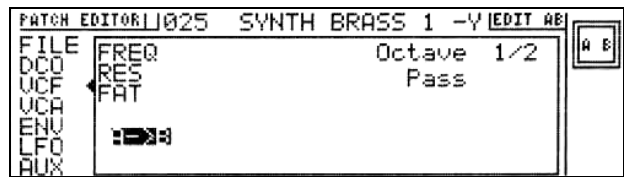
➡PATCH EDITOR➡VCF

selected: A → B (in series)

A → B MODE

Both VCF-A and VCF-B can be aligned in series where the output of VCF-A is routed to the input of VCF-B.

- select A → B and press ⬤   = enter the A → B figure configuration.

```
PATCH EDITOR  025   SYNTH BRASS 1  -V EDIT AB   A B
FILE  FREQ                  Octave   1/2
DCO   RES                      Pass
VCF  ◄FAT
VCA        A ⟩          ⟶ OUT A
ENV   A->B
LFO        B ⟩          ⟶ OUT B            SET
AUX
```

```
PATCH EDITOR ▪ 025   SYNTH BRASS 1  -V EDIT AB   A B
FILE  FREQ                  Octave   1/2
DCO   RES                      Pass
VCF  ◄FAT
VCA        A ⟩       ＼  ⟶ OUT A
ENV   A->B
LFO        B ⟩—  ——  ⟶ OUT B            SET
AUX
```
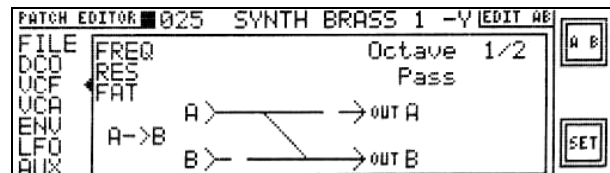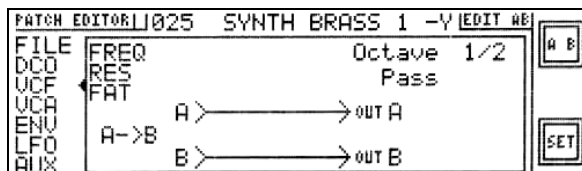
Now the left figure above shows a graph designating the normal VCF use. VCF-A is connected to the A-side and VCF-B is connected to the B-side.

- press   SET , ◄   = activate series alignment (right figure above).

Now the right figure above shows a graph designating the VCF's in series. The interruption at the B > means that the connection DCO's to VCF-B is shut off (i.e. the waveshape is set to "----"). The interruption at the > OUT A means that the VCA on the A-side is shut off (i.e. ENV1 on VCF-A is set to "000").
With a single push button the series configuration is achieved.

- press   SET , ◄   again   = deactivate series alignment. (see below).

```
PATCH EDITOR ▪ 025   SYNTH BRASS 1  -V EDIT AB   A B
FILE  FREQ                  Octave   1/2
DCO   RES                      Pass
VCF  ◄FAT
VCA        A ⟩          ⟶ OUT A
ENV   A->B
LFO        B ⟩—  ——  ⟶ OUT B            SET
AUX
```
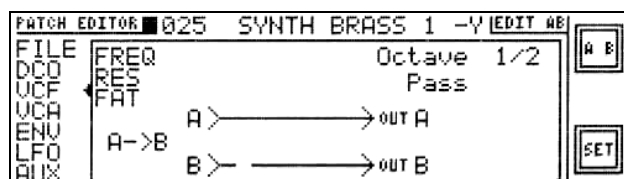
Now the graph shows the normal VCF use again. The interruption B > is not restored because there is no way to know which DCO **wave** was originally choosen. It must be set back manually in the DCO waveshape page (see page 45). The interruption > OUT A is restored as seen in the VCA page (see page 57). The latter restorage is done by making the ENV1 value "100".

note: A → B is only valid when the synthesizer is used in the TWIN mode.

note: for tips and hints about the use of A → B see page 70.

VCF: cutoff frequency

```
PATCH EDITOR||025   SYNTH BRASS 1  -V|EDIT AB|        A B
FILE |■ FREQ ■|BASIC      NOTE     VELOC    AFTER|
DCO  |Manual :sfv3|                         000
VCF  |[ENV2] :+047     000     +098
VCA  |[ENV3] :+049     000     +067
ENV  |[LFO3] : 000                          000
LFO  |                                             CLR
AUX  |⚡Expres: 000
```
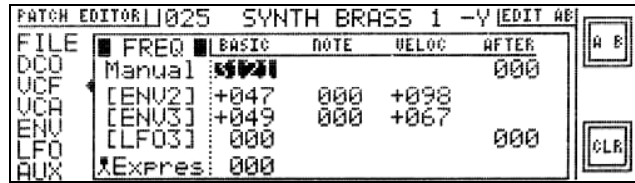
➡PATCH EDITOR➡VCF➡FREQ

selected: cut off frequency, manual amount, basic value

At this page you can make changes to:

1. frequency, fixed value   = Manual
2. frequency, modulated by Envelope Generator 2   = [ENV2]
3. frequency, modulated by Envelope Generator 3   = [ENV3]
4. frequency, modulated by Low Frequency Oscillator 3   = [LFO3]
5. frequency, modulated by a MIDI controller   = ⚡Expres (default assignment)

Shortcuts: **[ENV2]**, **[ENV3]**, **[LFO3].**   *(shortcuts, see page 36)*
Changing all parameter values: standard procedure   *(standard procedure, see page 39)*

note: Details about modulation by MIDI controllers, see pages 37 & 38. (MIDI controlled modulation)

	parameters:	range:
Manual	basic value	0/9600
	basic value affected by aftertouch	-127/+127
[ENV2]	basic value	-127/+127
	basic value affected by MIDI note nr.	-127/+127
	basic value affected by velocity	-127/+127
[ENV3]	basic value	-127/+127
	basic value affected by MIDI note nr.	-127/+127
	basic value affected by velocity	-127/+127
[LFO3]	basic value	-127/+127
⚡Expess	basic value	-127/+127

Manual, basic value:
Regarding the fact that 100 steps present 1 semitone interval, the VCF manual parameter ranges 8
octaves.

VCF: resonance

```
PATCH EDITOR■025  SYNTH BRASS 1 -V EDIT AB
FILE  ■ RES ■ BASIC   NOTE    VELOC   AFTER    A B
DCO   Manual  ▒▒▒    000              000
VCF  ◄[ENV2] +127    000    000
VCA   [LFO3]  000
ENV
LFO   ℟Expres 000                               CLR
AUX   ℟Foot-C 000
```
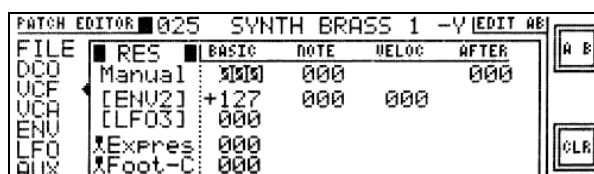
➡PATCH EDITOR➡VCF➡RES

selected: resonance, manual amount, basic value

At this page you can make changes to:

1. resonance, fixed value   = Manual
2. resonance, modulated by Envelope Generator 2   = [ENV2]
3. resonance, modulated by Low Frequency Oscillator 3   = [LFO3]
4. resonance, modulated by 1st MIDI controller   = ℟Expres *(default value)*
5. resonance, modulated by 2nd MIDI controller   = ℟Foot-C *(default value)*

Shortcuts: **[ENV2], [LFO3]**   *(shortcuts, see page 36)*
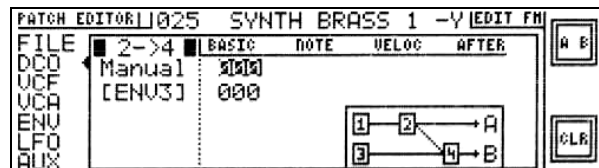Changing all parameter values: standard procedure   *(standard procedure, see page 39)*

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

	parameters:	range:
Manual	basic value	0/255
	basic value affected by aftertouch	-127/+127
[ENV2]	basic value	-127/+127
	basic value affected by MIDI note nr.	-127/+127
	basic value affected by velocity	-127/+127
[LFO3]	basic value	-127/+127
℟Expres	basic value	-127/+127
℟Foot-C	basic value	-127/+127

VCF: *fatness*

```
PATCH EDITOR■025   SYNTH BRASS 1  -V EDIT AB    ┌──┐
FILE ┌■ FAT  ■ BASIC    NOTE    VELOC    AFTER  │A B│
DCO  │                                          └──┘
VCF◄ │
VCA  │ Manual  ███                       000    ┌──┐
ENV  │ [ENV2]  000                              │CLR│
LFO  │ ↗Expres 000                              └──┘
AUX  │
```
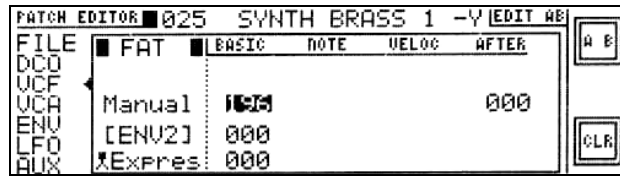
➡PATCH EDITOR➡VCF➡FAT

selected: resonance, manual amount, basic value

"Fatness" is a special HOUND feature, implemented to make a sound fatter or thicker.
At this page you can make changes to:

1. fatness, fixed value   = Manual
2. fatness, modulated by Envelope Generator 2 = [ENV2]
3. fatness, modulated by a MIDI controller   = ↗Expres   (default assignment)

Shortcuts: **[ENV2**   *(shortcuts, see page 36)*
Changing all parameter values: standard procedure   *(standard procedure, see page 39)*

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

note: When altering the fatness value it is recommended to experiment with altered VCF frequency and resonance settings as well.

	parameters:	range:
Manual	basic value	0/255
	basic value affected by aftertouch	- 127/+127
[ENV2]	basic value	-127/+127
[LFO3]	basic value	-127/+127
↗Express	basic value	-127/+127

VCA

```
PATCH EDITOR 025   SYNTH BRASS 1  -V EDIT AB
FILE  ■ VCA  ■ BASIC   NOTE   VELOC   AFTER    A B
DCO    [ENV1]  ▮▮▮   000     000     000
UCF
VCA    [LFO1]   000                   000
ENV   ⚲Expres   000
LFO
AUX   ⚲Volume  127                              CLR
```
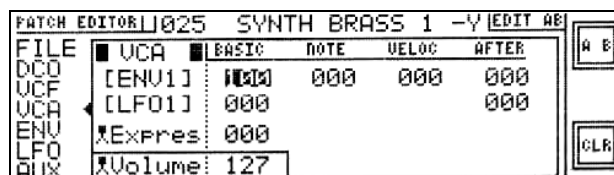
selected: VCA amplitude, manual amount, basic value

➡PATCH EDITOR➡VCA

In this page you can change values for all parameters concerning the volume of the patch.

1. volume, modulated by Envelope Generator 1   = [ENV1]
2. volume, modulated by Low Frequency Oscillator 1   = [LFO1]
3. volume, modulated by a MIDI controller   = ⚲Expres *(default assignment)*
4. volume, default setting (controlled by a MIDI ctrl.) = ⚲Volume *(default assignment)*

Shortcuts: **[ENV1]**, **[LFO1].**   *(shortcuts, see page 36)*
Changing all parameter values: standard procedure   *(standard procedure, see page 39)*

The MIDI controller on the bottom line (displayed in a separate **frame**) sets the default volume. When no MIDI volume control is applied, the value doesn't change. When a MIDI controller is applied, the controller will take control and will overrule the present value.

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

	parameters:	range:
Manual	basic value	0/127
[ENV1]	basic value	0/127
	basic value affected by MIDI note nr.	-127/+127
	basic value affected by velocity	-127/+127
[LFO3]	basic value	0/127
⚲Express	basic value	0/127
------------	------------------------------------	-----------
⚲Volume	basic value	0/127

note: The modulation depth of ENV1 can be used as a finetuning volume adjustment, however the value of "000" completely shuts off the VCA.

ENV: envelope generator 3, triggering

```
PATCH EDITOR■025  SYNTH BRASS 1 -Y EDIT AB      A B
FILE  Env1-VCA
DCO   Env2-VCF
VCF
VCA   Env3-General
ENV
LFO        └─▲HoldPd   TOGL   PUSH             REU
AUX
```
selected: Env3-Kick

➡PATCH EDITOR➡ENV

In this page you can define whether Envelope Generator 3 is triggered by a MIDI note or by the Kick pedal. The Kick function is here attached to the MIDI Hold 2 Pedal. The Kick pedal can be set to the normal pedal mode ("PUSH") or toggle mode ("TOGL").

When the kick pedal isn't enabled:

- select **Note** and press   🔘   = kick pedal enabled

When the kick pedal enabled:

- select **Kick** and press   🔘   = kick pedal disabled, ENV3 is triggered by note.

When the kick pedal works when pushed:

- select **Push** and press   🔘   = kick pedal works as toggle.

When the kick pedal works in toggle mode:

- select **Togl** and press   🔘   = kick pedal works as a push button.

note: Settings for the Kick pedal can also be changed in "patch editor➡aux➡pedal", see page 63.

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

THE PATCH EDITOR: ALL PARAMETERS
ENV: all envelope generators

```
PATCH EDITOR■025   SYNTH BRASS 1  -V EDIT AB
FILE  ■ ENV3 ■ BASIC   NOTE    VELOC   R-VEL    A B
DCO   ATTACK    045           000
VCF   DECAY     025    000     000
VCA   SUSTAIN  +127
ENV   RELEASE   010    000     000     000      CLR
LFO   DELAY     000
AUX
```

➡PATCH EDITOR➡ENV➡ENV1
➡PATCH EDITOR➡ENV➡ENV2   selected: ENV3, attack time, manual amount, basic value
➡PATCH EDITOR➡ENV➡ENV3

All three Envelope Generator are configured in the same way. At these pages you can make changes to:

attack time   = Attack
decay time   = Decay
sustain level   = Sustain
release time   = Release
delay time (delay start) = Delay

Changing all parameter values: standard procedure   *(standard procedure, see page 39)*

note: The utmost right parameter column is changed from "AFTER" to "R-VEL" (release velocity)

note: By adjusting the SUSTAIN *level to a negative value the ENV will repeat it's* ATTACK / DECAY *trajectory until the note will be* RELEASED*.*

	parameters:	range:
Attack	basic value	0/255
	basic value affected by velocity	-127/+127
Decay	basic value	0/255
	basic value affected by MIDI note nr.	-127/+127
	basic value affected by velocity	-127/+127
Sustain	basic value	-127/+127
Release	basic value	0/255
	basic value affected by MIDI note nr.	-127/+127
	basic value affected by velocity	-127/+127
	basic value affected by release velocity	-127/+127
Delay	basic value	0/255

LFO: low frequency oscillator 3, mode & wave

selected: Lfo3-Triangle

➡PATCH EDITOR➡LFO

In this page you can define whether Low Frequency Oscillator 3 works in **Freerun** or in **Align**. In Freerun the fase of LFO3 is unpredicted. This can be troublesome when chords are played. In Align mode the LFO3's of the chord are synchronized.

Also the LFO3 output can be altered:

  Triangle
  Sawtooth
  Square

When LFO3 is in Freerun mode:

• select **Freerun** and press [◯]   = set LFO3 in Align mode.

When LFO3 is in Align mode:

• select **Align** and press [◯]   = set LFO3 in Freerun mode.

Change LFO3 output wave:

• select LFO3 wave and press [◯] repeatedly   = modify the LFO3 output wave.

LFO: low frequency oscillator 2

```
PATCH EDITOR 025   SYNTH BRASS 1 -Y EDIT AB
FILE  ■ LFO2 ■ BASIC   NOTE   VELOC   AFTER   A B
DCO
VCF
VCA      SPEED  100   000          000
ENV   ▲FXcon1  000
LFO ◄                                          CLR
AUX
```
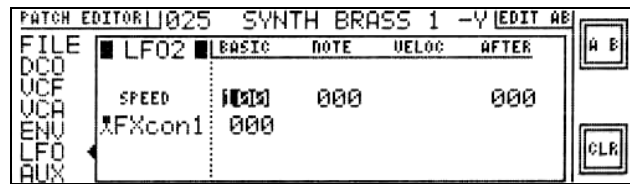
➡PATCH EDITOR➡LFO➡LFO2

selected: LFO speed value, 100

Low Frequency Oscillator 2 is used for P(ulse) W(idth) M(odulation). At these pages you can make changes to:

1. LFO speed, fixed value   = Manual
2. LFO speed, modulated by a MIDI controller = ▲FXcon1 *(default value)*

Changing all parameter values: standard procedure.   *(standard procedure, see page 39)*

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

	parameters:	range:
Manual	basic value	0/255
	basic value affected by MIDI note nr.	-127/+127
	basic value affected by aftertouch	-127/+127
▲FXcon1	basic value	-127/+127

LFO: low frequency oscillator 1 and 3
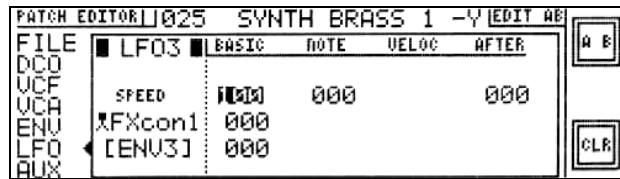
➡PATCH EDITOR➡LFO➡LFO1
➡PATCH EDITOR➡LFO➡LFO3

selected: LFO3, speed, manual amount, basic value

At these pages you can make changes to:

1. LFO speed, fixed value   = Manual
2. LFO speed, modulated by a MIDI controller   = ⊼FXcon1 (default value)
3. LFO speed, modulated by Envelope Generator 3   = [ENV3]

Shortcut: **[ENV3]**   *(shortcuts, see page 36)*
Changing all parameter values: standard procedure   *(standard procedure, see page 39)*

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

	parameters:	range:
Manual	basic value	0/255
	basic value affected by MIDI note nr.	-127/+127
	basic value affected by aftertouch	-127/+127
⊼FXcon1	basic value	-127/+127
[ENV3]	basic value	-127/+127

note: LFO3 is syncronized by the played note if the according parameter in the LFO section is set to ALIGN. If there is a need for LFO3 to run freely set the parameter to FREERUN (see figure page 28).

AUX: mono / poly mode
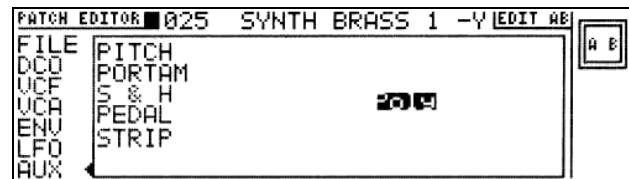
```
PATCH EDITOR■025   SYNTH BRASS 1 -Y EDIT AB    A B
FILE PITCH
DCO  PORTAM
VCF  S & H
VCA  PEDAL                    ▦▦
ENV  STRIP
LFO
AUX  ◀
```
selected: Poly mode.

➡ *PATCH EDITOR*➡*AUX*

MONO / POLY mode

The **MONO** / **POLY** mode concerns the way voices are allocated to the music beeing played. In **POLY** mode voices are allocated as expected. Voices momentary not in use (no played note attached to it) are the first to be allocated to new played notes.
When monophonic operation is preferred like with portamento, or a bass / solo track may not be interrupted it is wise to set it to **MONO**.

- • select the present value and press 🔘 repeatedly   = change the value accordingly.

AUX: pitch bend and vibrato

```
PATCH EDITOR■025  SYNTH BRASS 1 -Y EDIT A B
FILE PITCH ◄JPiBEND    PITCH BEND           A B
DCO  PORTAM       2 Sem
VCF  S & H
VCA  PEDAL   ▲ModWhl    PITCH VIBRATION
ENV  STRIP        1 Sem LFO1 ---            REV
LFO
AUX ◄
```
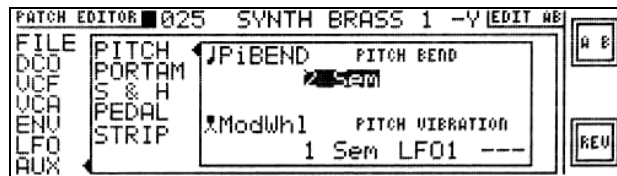
➡*PATCH EDITOR*➡AUX➡PITCH

selected: Pitch Bend interval = 2 semitones

PITCH BEND

Normally Pich Bend is done by the Pitch Bend Wheel (= default: ♩PiBEND), hence the default value for assigned MIDI controller. The pich-bend interval can be changed, range: **---** (= off) to one octave, in semitone steps, the default value is 2 semitones.

- select **"2 Sem"** (below "PITCH BEND")

- press 🔴 or lower REV **>** ◀ repeatedly   = value will change accordingly

VIBRATO

Normally Vibrato is controlled by the Modulation Wheel (= default: ▲ModWhl), hence the default value for assigned MIDI controller. The vibrato interval can be changed, range: **---** (= off) to one octave, in semitone steps, the default value is 1 semitone.

- select **"1 Sem"** (below "PITCH VIBRATION")

- press 🔴 or lower REV **>** ◀ repeatedly   = value will change accordingly

You can select normal vibrato (frequency modulated by LFO1) or frequency modulation by Envelope Generator 3.

- select "LFO1" or "ENV3" (below "PITCH VIBRATION")

- press 🔴 or lower REV **>** ◀ repeatedly   = value will toggle between "LFO1" and "ENV3"

The vibrato depth can also be controlled by aftertouch.
"Aft" = enable aftertouch influence, "---" = disable aftertouch influence.

- select "---" or "Aft" (below "PITCH VIBRATION")

- press 🔴 or lower REV **>** ◀ repeatedly   = value will toggle between "Aft" and "---".

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

AUX: portamento

```
PATCH EDITOR■025  SYNTH BRASS 1 -Y|EDIT AB|   ┌───┐
FILE│PITCH                                    │A B│
DCO │PORTAM◀          PORTAMENTO  TIME        └───┘
VCF │S & H │¬P-Time      ▨▨▨
VCA │PEDAL │                                  ┌───┐
ENV │STRIP │          PORTAMENTO ON-OFF       │CLR│
LFO │      │▴Po.Swi  Active  PUSH             └───┘
AUX ◀
```

➡PATCH EDITOR➡AUX➡PORTAM
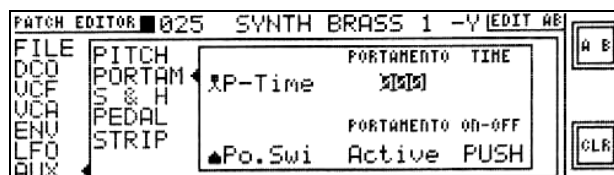
selected: portamento time = 000

PORTAMENTO TIME

The portamento time can be set manually and/or be controlled by a MIDI controller (default: ¬P-Time).
When the MIDI controller is used the portamento time changes accordingly, the "manual value" will be
overruled.

•   select 000 (below "PORTAMENTO TIME)

changing the value: standard procedure, range: 0/255   *(standard procedure, see page 39)*

GLIDING FROM ONE CHORD TO ANOTHER (POLYPHONIC PORTAMENTO)

It is possible to temporarily activate polyphonic portamento, for instance, when going from one chord to
another. I.e.: when you play a chord and you want all the voices to glide to the next in a musical (parallel)
way, proceed as follows;

•   play a chord

•   press and hold the pedal, assigned to "▴Po.Swi"   (default pedal)

•   play the next chord *(use the same amount of voices!)*

MONOPHONIC PORTAMENTO

When the patch is used in the MONO mode *(see page 39: changing the playmode)*, a played note can
glide with a specified speed from the previous note to the current note. This only works if the portamento
ON/OFF switch is being pressed. Releasing the ON/OFF switch, overrules the gliding speed, the speed
becomes zero. It is however possible to change the portamento ON/OFF switch mode from "Active" to
"Bypass". Then the portamento time (glide) is always valid despite of the ON/OFF switch.

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

AUX: sample and hold

selected: input for S&H = NOISE
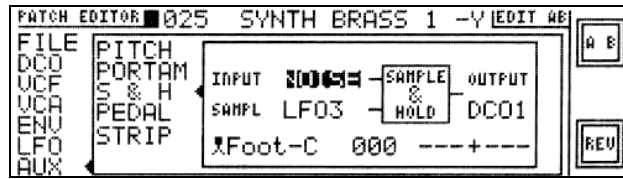
➡PATCH EDITOR➡AUX➡S & H

CONFIGURATION

basic functions: *location of the* parameter:

Sources for S & H can be either "NOISE" or LFO2,   right of "Input"
The sample rate is controlled by either LFO3 or a MIDI note   right of "Sampl".
The S & H can be applied on DCO2 or VCF/FREQ or FM   right of "Output".

Changing the values:

- press 🟣 or lower REV > ◀ repeatedly   = value changes accordingly

AMPLITUDE CONTROL

Three parameters can control the amplitude of the S &H generator, and the amplitude can be modulated
by a MIDI controller (default = ♪Foot-C).
They are located at the bottomline of the page, right of the MIDI controller. From left to right, the
parameters are:

Initial amplitude,   range 0/255

- changing the value: standard procedure *(see page 39)*

Enable/disable MIDI controller modulation   on/off, represented as: ♪/---
Enable/disable modulation by aftertouch   on/off, represented as: AFT/---

- changing the values: press 🟣 or lower REV > ◀ repeatedly   = value changes accordingly

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

note: When both MIDI controller and aftertouch are switched of (see the picture above), the amplitude is set to maximum, thus overruling the parameters.

AUX: pedal assignment and pedal mode

PATCH EDITOR■025   SYNTH BRASS 1 -Y [EDIT AB]
FILE PITCH   SUSTAIN PEDAL
DCO   PORTAM   ▲SustPd   PUSH
VCF   S & H
VCA   PEDAL   KICK ENV3
ENV   STRIP
LFO   ▲HoldPd   TOGGL   PUSH
AUX

➡*PATCH EDITOR*➡*AUX*➡*PEDAL*

selected: hold pedal triggers ENV3

In this page you can change the assigned MIDI controller for the Sustain pedal (default: ▲ SustPd) and the Kick pedal (default: ▲HoldPd), and it's possible to change the operation mode between PUSH and TOGGLE.

In conjunction with the portamento on/off function (which can be edited upon in the portamento editing page these are the three pedal functions the HOUND supports.

In this page (also in the ENV section page) you can define whether ENV3 is being triggered by MIDI note nr. or by the Kick pedal.

Changing the values:

- press 🔘 or lower REV > ◀ repeatedly   = value changes accordingly

note: Details about modulation by MIDI controllers, see pages 37 & 38 (MIDI controlled modulation)

note: PUSH means that the pedal works as is. For instance when the sustain pedal is pushed it is active, while when it is released it is no longer active.

note: TOGGLE means that when the pedal is once pressed/released it is active. After the next press/release is is inactive again.

note: When a pedal like the sustain pedal is set on TOGGLE and used for instance for pitchbend (yes, this is possible) then the TOGGLE doesn't work. It is the sustain function itself that toggles, not the pedal.

AUX: strip (set DCO, VCF, VCA, ENV3/LFO3, AUX, and Contr)

```
PATCH EDITOR■025   SYNTH BRASS 1 -Y EDIT AB
FILE  PITCH   DCO    ENV3/LFO3
DCO   PORTAM  VCF    AUX-stuff
VCF   S & H   VCA    ♩♫▲ Contr
VCA   PEDAL  ─────────────────
ENV   STRIP  ◄Make Copy  A --> B
LFO          Make Copy  B --> A
AUX   ◄
```
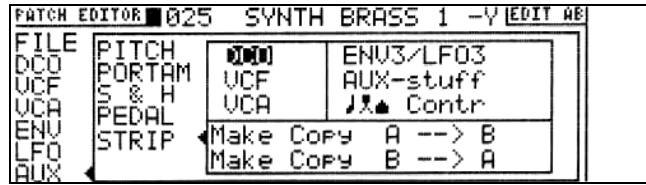
➡PATCH EDITOR➡AUX➡STRIP

selected: the DCO's can now be stripped

In this page you can:

1. strip several sections of the patch to a default value.
2. you can copy values from the A-side to the B-side and vice versa.

Stripping sections

The DCO, VCF, VCA, ENV3/LFO3, AUX, and controller sections can be stripped (reset) to default values in order to create a patch from scratch.

All settings made in this page will take effect after leaving the page. A dialog page will appear in which you will be asked to confirm (press **YES** > ◄) or to cancel (press ✖) all commands set in the previous page.

- select DCO and press   🔘   = a "**&**" will appear, the DCO will be stripped after confirming.

- select VCF and press   🔘   = a "**&**" will appear, the VCF will be stripped after confirming.

- select VCA and press   🔘   = a "**&**" will appear, the VCA will be stripped after confirming.

- select ENV3/LFO3 and press   🔘   = a "**&**" will appear, the ENV3/LFO3 will be stripped after confirming.

- select AUX and press   🔘   = a "**&**" will appear, the AUX page itself will be stripped after confirming.

- select ♩♫▲ and press   🔘   = a "**&**" will appear, the Controllers will be stripped after confirming.

Copying parameter values

- select A --> B and press   🔘   = an "**&**" will appear,
                                                      all values from A will be copied to B after confirming.

- select B --> A and press   🔘   = an "**&**" will appear,
                                                      all values from B will be copied to A after confirming.

note: The dialog page will only show up after leaving the page pressing ✖ , if any selections are made.

MIDI SYS EX STORAGE

Introduction

Some MIDI information, such as note on/off, controllers, program changes, etc., is understood by virtually all commercial available MIDI devices. There are special messages called SYSTEM EXCLUSIVE (or SysEx) reserved for transfering specific information from and to external devices (such as PC's).

The HOUND is capable to send and receice data from a PC to the HOUND and vice versa. A special program, called HOUNDLIB, can be used to load and/or dump a set of Patches to the PC. This gives the user the possibility to read a set of Patches from the HOUND, arrange the Patches on the PC's screen, dump them on the harddisk, and write them back to the HOUND. The same is valid for the set of MULTI's too, in the same matter.

Sending/receiving Patches & Multi's

A free HOUNDLIB librarian program is included with each HOUND synthesizer and can be downloaded from our internet site: www.cirko.com

To avoid unsuspected problems in combination with other MIDI devices it is advisable to switch SYSEX off in the SETUP menu. It is than impossible to overwrite Patches or Multi's. Using the HOUNDLIB librarian is explained in the file helplib.XXX, which is available on the diskette.

TIPS AND HINTS

❶ *How to work with special VCF modes (TWIN).*

Normally the VCF is used in the 24 dB/octave lowpass mode. The VCF can be used in SOLE mode (VCF-A) and TWIN mode (VCF-A and VCF-B). It is however possible to make a sound (patch) for TWIN mode only and use both VCF-A and VCF-B to make a double filter sound. The resonance of VCF-A and VCF-B can more or less be tuned close to oscillation, and with carefully detuned cutoff-frequency of VCF-A and/or VCF-B a nose like sound can be made.
This effect is more obvious when the patch is routed to both output-1 and output-2 (resp. output-3 and output-4), thus making it a mono sound (on two outputs).
The latter makes it worth while trying out the INVERT on VCF-A, and the BANDPASS on VCF-B:

1) VCF-A can be set in INV(erse) mode to substract VCF-A from VCF-B. This can give notch filter like thin sounds especially when both cutoff-frequencies are matching closely.

2) VCF-B can be set in BANDpass mode thus making the sound clearer.

When both VCF's are set in series mode (see filter modes page 50) only the DCO's allocated to the A-side of the sound are routed through VCF-A, then through VCF-B, and finally to the B-side of the voice. Inverting VCF-A is now irrelevant, bandpassing VCF-B makes the sound clearer.
When the VCF's are set in series it is possible to manually change this "preset". For instance the interruption on the output of the A-side can be overruled by adjusting the ENV1 in the VCA page (page 54). The DCO's waveshapes originally allocated to the B-side can be set back to a wave of choise.

❷ *"TWIN in mono"*

The "TWIN mode in mono" can be accomplished (without changing the output assignment in the relevant Multi) by selecting the SOLE mode prior to using the Patch Editor. In this way the sound is heard in TWIN mode (forced by the Patch Editor) but routed to both Output 1 & 2.

To use the sound in the Multi Timbral mode:
Leave the Patch Editor and select TWIN. Configure the routing of VCF-A (the "A side" of the voice) and VCF-B (the "B side" of the voice) to both output 1 & 2 (or 3 & 4) in the MULTI.

❸ *Use the "peer" to set DCO's fase*

When two (or more) DCO's are used with slightly detuned frequencies it can be nice to switch the "peer" of all concerning DCO's on. On each keystroke (note on) the fase of the DCO's is cleared which gives the sound more body on the attack. This can also be nice in conjunction with the VCF INVerse mode (see   ).

❹ *Reset the Hound*

If the Hound is in an undetermend state it can be reset by pressing the ❎ when the Hound opening screen is present (*see figure on page 14, but without the welcome message*).

❺ *MIDI ERR*

The status line on the bottom of the display, which shows the current MULTI and SOLE/TWIN, can give the message: "MIDI ERR". This means that the MIDI controllers SETUP submenu (*see page 16*) contains one or more double names in it. Remove them or set them to default. The error message will disappear.

❻ *Polyphony overflow*

In the opening screen (see page 14) there are a number of dots right under the SETUP, MULTI, PATCH, TOOLS imaging the number of voices in TWIN mode. When a overrun on the number of voices occurres (i.e. more notes are played/pressed than the max. available) a "X" will display this occurrence right of the dots.

GLOSSARY

Key

In this manual the word "key" is generally used for push button switches on the front panel.

Dataknob

The knob on the frontpanel. Changes parameter values. Turn it slowly: data changes slowly, turn it quickly: data change quickly (and more quickly than you would expect)

Soft key

On the HOUND, a push button switch (on the front panel) with no predefined function. The current state of the HOUND determines the function, which is displayed right in the display in any page.

Parameter

A value which can be changed as displayed on the screen of the HOUND.

Page

On the HOUND, a "page" is a set of information and parameters shown at any one time on the display screen.

Dialog page

An "interactive" page, in a dialog page the HOUND proposes two options for "what to do next", and explains the necessary steps to undertake.

Patch

The collection of parameters which make up a sound.

Patch List

The collection of all patches/patchnumbers.

Multi

The collection of parameters which define for each MIDI channel: the audio output and patch nr. assigned to that particular MIDI channel.

Voice

The number of voices defines the number of notes that can be heard at the same time.
E.g.: When a synthesizer has only one voice installed, only one note can be heard at the same time.
E.g.: A six string guitar represents an instrument having six voices "installed".

Monophonic (play)mode

Only one note can be heard at the time when playing on a keyboard.

Polyphonic (play)mode

When playing on a keyboard all available voices can be played. The HOUND can produce 16 voices, so 16 notes can be heard at the same time.

Sample and Hold

The sample and hold extracts samples of a (sound)source at a certain rate. It can be used as a modulation source.

TROUBLE SHOOTING

There is nothing visual on the HOUND display.
i.   Check all connections to MIDI-IN, MIDI-OUT, audio output 1, 2, 3, 4.
ii.   Check mains power connection and mains switch.
iii.   Switch the HOUND off, wait for 10 seconds, and switch it on again while pressing the upper softkey. The contrast of the display is now set to a default value.

There is no responce to MIDI messages.
i.   Check all connections to MIDI-IN, MIDI-OUT, audio output 1, 2, 3, 4.
ii.   Check incoming messages with the MIDI tester (TOOLS) menu.
iii.   Check if the MIDI channel is deselected (----) in the MULTI (select Patch #).
iv.   Check if the MIDI channel has the appropriate routing.
v.   Check if the selected Patch is correctly edited.

Not all Midi channels are responding while in the Patch Editor (supposed OMNI)
i.   Check if any patch number is deselected in the MULTI CHANNEL PATCH. If so this is not heard in the Patch Editor OMNI mode. Selection is thus needed.
ii.   When in the Patch Editor only OUTPUT-1 and OUTPUT-2 are selected.

MIDI IMPLEMENTATION CHART

[HOUND ANALOG SYNTHESIZER]   Date: 99-05-28
    Model HOUND   MIDI Implementation Chart   Version: 01.01.xx

Function…		Transmitted	Recognized		Remarks
Basic	Default	X	1 … 16		Only used for SYSEX.
Channel	Changed	X	1 … 16		Stored in SETUP Menu.
	Default	X	Mode 3		Poly/Mono stored in Patch.
Mode	Messages	X	X		
	Altered	*****	X		
Note		X	21 … 108		
Number	True voice	*****	21 … 108		
	Note On	X	O		
Velocity					
	Note Off	X	O		
After	Key's	X	O		
Touch	Channel	X	O		
Pitch Bend		X	O		
	1	X	O	(vibrato)	Modulation Wheel
	2	X	O	(DCO group)	Breath Controller
	4	X	O	(resonance)	Foot Controller
	5	X	O	(portamento)	Portamento Time
	7	X	O	(volume)	Channel Volume
	11	X	O	(expression)	Expression Controller
	12	X	O	(LFO group)	Effect Control 1
Control	13	X			Effect Control 2
Change	16	X			General Purpose #1
	64	X	O	(sustain)	Damper Pedal (sustain)
	65	X	O	(portamento)	Portamento On/Off
	67	X			Soft Pedal
	68	X			Legato Footswitch
	69	X	O	(LFO group)	Hold 2
	121	X	O		Reset All Controllers
Program		X	1 … 120		Can be disabled
Change	True Number	*****	1 … 120		
System Exclusive		O	O		Univ. Sysex FILE DUMP
System	Song Position	X	X		
	Song Select	X	X		
Common	Tune Request	X	X		
System	Clock	X	X		
Real Time	Commands	X	X		
	Local On/Off	X	X		
Aux	All Notes Off	X	O		Control Change 123
Messages	Active Sensing	X	X		
	System Reset	X	X		
Notes		MIDI-OUT used for SYSEX only	MIDI-IN → MIDI-THRU		

Mode 1: Omni On, Poly   Mode 2: Omni On, Mono   O: Yes
Mode 3: Omni Off, Poly   Mode 4: Omni Off, Mono   X: No

Specifications

MIDI

MIDI-IN	**DIN 5 pin (180 degree) female receptacle**
MIDI-OUT	**DIN 5 pin (180 degree) female receptacle**
MIDI-THRU	**DIN 5 pin (180 degree) female receptacle**

OUTPUTS

OUTPUT 1	**1 / 4 inch (6.35mm) Mono Jack Connector**
OUTPUT 2	**1 / 4 inch (6.35mm) Mono Jack Connector**
OUTPUT 3	**1 / 4 inch (6.35mm) Mono Jack Connector**
OUTPUT 4	**1 / 4 inch (6.35mm) Mono Jack Connector**
All outputs	**unbalanced output** **average –5 dBu** **peak +2 dBu**

MAINS POWER

IEC inlet	**230 Volt AC** **25 VA electrical power consumption** **50 Hz frequency** **Fuse: 0.16 Ampere slow blow**

PHYSICAL

Dimensions (incl. case feed)	**Height 3.7 inch (95 mm)** **Width 19 inch (483 mm)** **Depth 11.4 inch (290 mm)**
Dimensions (rack mount)	**19 inch standard case** **2 HU (height units)** **case feed can be removed by uncrewing**
Netto Weight	**6 kg**

WARRANTY

1. CIRKO Electronics warrants the proper operation of this product, for a period of 12 months. Warranty is provided in materials and workmanship.

2. Warrenty is given to the first and original purchaser of the product who, in order to obtain any right, has to fill in the Warrenty Registration Card and return it by mail with the proper stamps attached to it within 30 days.

3. Repair or service under warranty is obtained by sending it properly packed (like the original package) to:

> CIRKO Electronics
> Kon. Arthurlaan 200
> 5625 CH Eindhoven
> the Netherlands

4. Repair or service under warranty is will be provides at no costs. All costs of transportation from and to CIRKO Electronics will be charged to the owner.

5. CIRKO Electronics has the right to retain warranty in the following cases:

    Damage caused by deliberate actions.
    Damage caused by neglectful behaviour.
    Damage caused by third parties in any use.
    Serial Number has been removed or tampered with.