Schrittmacher

MIDI Step Sequencer



User Manual

OS V1.0a

manikin
electronic

Preface

Thank you very much for buying the Schrittmacher from Manikin Electronic. The Schrittmacher extends your music studio by an exceptionally high-performance step sequencer. It allows you intuitive generation of sequences and grooves. Play with it and discover for yourself the new possibilities of step sequencing. We hope you will get many ideas for your music by working with your new sequencer: Enjoy using it.

The Schrittmacher's development team

Thorsten Feuerherdt	:	Hardware, housing, design, manual
Markus Horn	:	Software, design, manual
Mario Schönwälder	:	Manual, Beta test
Detlef Keller	:	Beta test
Helga Busch	:	Translation
Version	:	1.0a, March 2004

Our special thanks to

Klaus Schulze, Bas B. Broekhuis, Till Kopper, Thomas Fanger, Andreas Schneider, Pamela und Nele, Kathja and Niels, … as well as everybody else we may have forgotten to mention here.

Note

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Manikin Electronic, Attilastraße 87k, D-12247 Berlin, Germany

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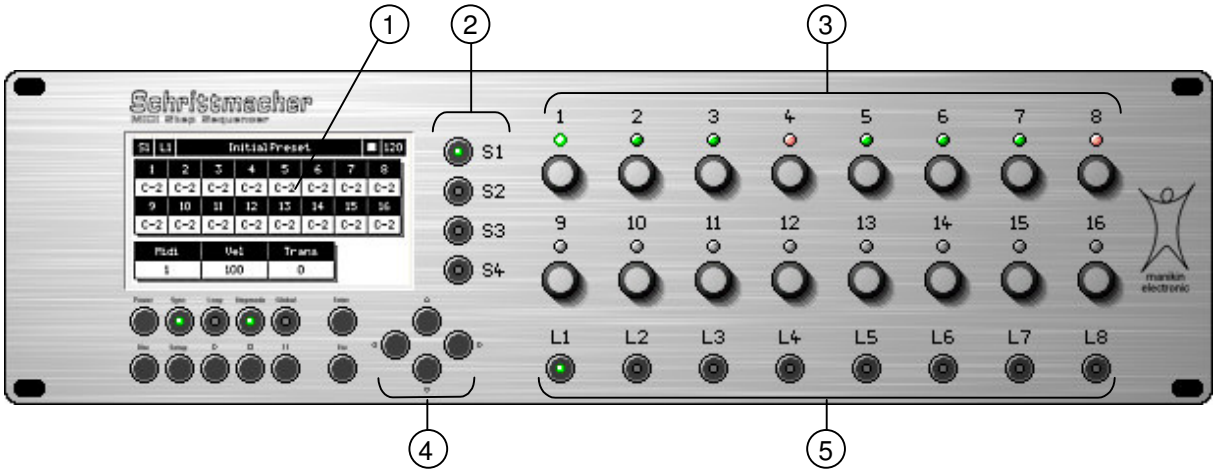
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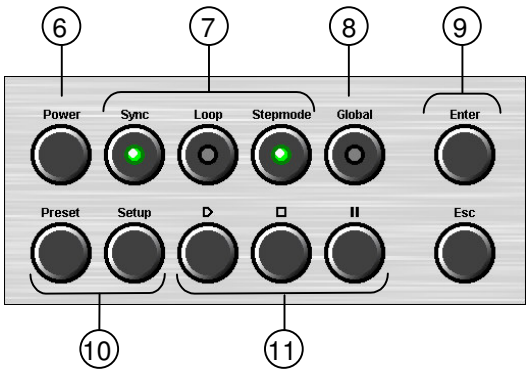
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Operating elements & connections

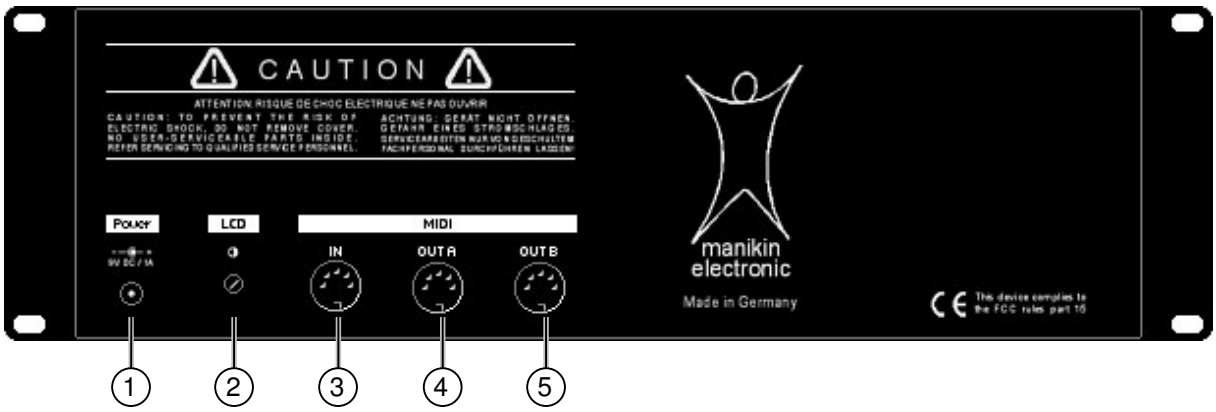
Front panel





1. Display
2. Sequence buttons for selecting the active sequence range
3. Endless dial with LEDs to edit the 16 steps
4. Cursor buttons
5. Line buttons to select the active line
6. Power button
7. Sync, Loop and Step mode button
8. Global button
9. Enter and Escape
10. Preset and Setup menus
11. Start, Stop and Pause

Back panel



1. Voltage supply socket for the connection of the supplied power supply
2. LCD contrast
3. MIDI IN socket to receive MIDI data
4. MIDI OUT socket A to transmit MIDI data
5. MIDI OUT socket B to transmit MIDI data

Introduction

Even if you are a professional in using studio equipment and sequencers it will be useful to read this user manual right through to the end. The Schrittmacher features many new functions never before implemented in a hardware sequencer.

About this manual

This manual is intended to make the first steps for using the Schrittmacher easier for you. Moreover it also provides support and tips to the experienced user for his daily work.

For simplicity's sake all technical terms in these instructions are identical with the Schrittmacher's parameter designations.

Symbols used

To ensure a better overview, this manual uses standardized spelling and symbols which are explained below. Important notes are highlighted in bold print.

! Attention – Pay special attention to this note to avoid malfunctions.

i `Gives some short additional information.`

☞ **Instructions – Observe these instructions to execute the requested function.**

Marking of parameters

All designations of buttons, controllers and parameters of the Schrittmacher in the text are highlighted in **bold print**.

Example:

Press the **Power** button.

The value range permitted for parameter setting is highlighted by indicating the maximum and minimum values in italics separated by three dots. Settings which cannot be represented by a value range are separated by a comma.

Example:

Midi *A01 ... A16, B01 ... B16*

General safety notes

Please read the safety notes below very carefully. They comprise some basic rules for the use of electric devices. Please read all the notes before you start using the device.

Suitable location

- Only operate the device in closed rooms.
- Never operate the device in humid environments such as bathrooms, washing rooms or swimming pools.
- Do not operate the device in extremely dusty or dirty environments.
- Ensure unhindered air supply to all sides of the device. Do not place the device in close proximity of heat sources such as radiators.
- Do not expose the device to direct sunlight.
- Do not expose the unit to heavy vibration.

Mains connection

- Only use the supplied connection cable or the supplied power supply.
- If the supplied mains connector does not fit into your socket you should consult a qualified electrician.
- Disconnect the mains connector from the socket if you do not use the device for a longer period of time.
- Never touch the mains connector with wet hands.
- When disconnecting, always pull the connector and never the cable.

Operation

- Never place any vessels containing liquids on top of the device.
- Ensure that the device cannot move during operation. Use a solid base or a suitable built-in rack (19“ format).
- Ensure that no objects can get inside the device. Should this happen against all odds, switch the device off and disconnect it from the mains. Then contact a qualified supplier.

Maintenance

- Do not open the device. Any repair or maintenance should be done by qualified personnel only. There are no parts inside the device that could be maintained by the user. You will also lose your right to claim warranty if you open the device.
- Only use a dry, smooth cloth or brush for cleaning the device. Do not use any alcohol, solvents or similar chemicals. They will damage the surfaces.

Proper use

This device is exclusively intended for creating and processing control signals according to the MIDI standard. Any other use is not permitted and will exclude any warranty claims towards Manikin Electronic.

Setup

Parts supplied

Please check when unpacking if all parts are included. Should something be missing contact your specialist supplier immediately.

The Schrittmacher is supplied with:

- an external power supply with cable,
- this manual.

We recommend to keep the original packaging for further transports.

Installation

Place the Schrittmacher on a clean, even base. Installation in a solid 19" rack is recommended. The required space for the height is 132mm which corresponds to 3U. The installation depth is 74mm.

Connections

You need a mains outlet and at least one sound generator with MIDI interface.

i **The Schrittmacher allows internal generation of transposing and other MIDI control commands. However, the fun factor in using the Schrittmacher for your work will be increased by at least 10000%, if a master keyboard whose MIDI controllers can be freely assigned is connected to the MIDI input.**

☞ **How to make the necessary connections:**

1. Ensure that the Schrittmacher and your MIDI devices are switched off.
2. Connect the supplied power supply to the Schrittmacher and connect the supplied mains cable to the power supply. Then plug the mains connector into a suitable mains outlet.
3. Connect the MIDI outputs of the Schrittmacher to the MIDI inputs of the sound generator.
4. Connect the MIDI input (MIDI IN) of the Schrittmacher to the MIDI output of a master keyboard (not required).
5. Switch the Schrittmacher and your MIDI devices on.
6. Continue with the chapter “Basic Operation“ on the next page.

Basic Operation

Power ON

For Power ON press the **Power** button. After being switched on the Schrittmacher needs a few seconds to initialize.

Power OFF

To switch the device off press the **Power** button and keep it pressed until the device is separated from the mains. The off-delay of approx. 5 seconds is to prevent unintentional switching off. Thus pressing the **Power** button briefly will not result in an unintended and possibly embarrassing stop during a live concert.

Playing sequences

By pressing the **Start** button the loaded preset is started. All active lines of the 4 sequence ranges will now create MIDI events which are sent via the MIDI outputs.

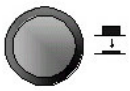
A running preset can be stopped by pressing the **Pause** button with the preset not being reset. By pressing the **Start** button again playing of the preset will be continued starting from that point where it was stopped.

Using the **Stop** button you will stop playing and reset the preset to the initial position.

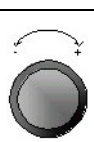
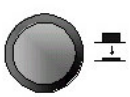
Input using the endless dials

The endless dials used in the Schrittmacher do not have an end stop position – as opposed to potentiometers. They also have a pushbutton. Depending on the assigned function, parameters can be input using the endless dials:

Editing parameters

By turning an endless dial clockwise, the respective value is incremented. By turning it counter-clockwise the respective value is decremented.	
By pressing the endless dial the mode of a step (play / mute / skip) can be changed. It depends on the set step mode between which modes you can change. For more information read the “Step Mode” section on page 24.	

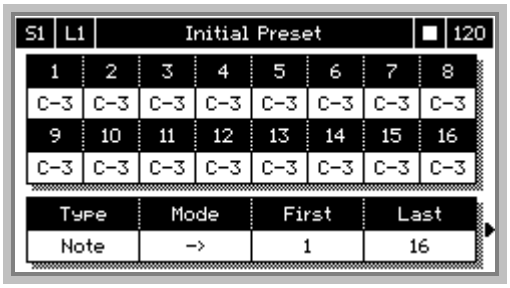
Menu navigation

You can mark a menu item using the endless dial 9. By turning it clockwise you move the marking downward. By turning it counter-clockwise you move it upward. Alternatively you can also move the marking using the cursor buttons ◄▲▼►.	
You can select the menu item by pressing the endless dial or the **Enter** button. You exit the menu <u>without</u> making any selection by pressing the **Esc** button.	

i When an endless dial can be used for a selection function, the respective LED lights orange.

Working with the Schrittmacher

After Power ON an initialized preset with a note line is loaded. All other lines are OFF. In the display you see the line that has been selected, the preset name, the play mode, the speed, the values of the 16 steps as well as the line parameters.



Selecting a line

The Schrittmacher has 4 separated sequence ranges between which you can change using the **Sequence** buttons. In each range there are 8 lines between which can be changed using the **Line** buttons. Once you have selected a line by means of the **Sequence** and **Line** buttons you can process the 16 steps and the line parameters of this line using the endless dials.

The LEDs integrated in the **Sequence** and **Line** buttons indicate which line has been selected for editing. Alternatively there is an indication on the top left which line has been selected: for example, ”S2 | L3“ means that you are editing the third line in the second sequence range.

Editing a line

Using the 16 endless dials allows you to edit the steps of the selected line.

Editing the step values

The value of a step is incremented by turning the endless dial clockwise. This means that the value is decremented if the endless dial is turned counter-clockwise. To cross very large value ranges some acceleration has been integrated – i.e. the faster the endless dial is turned, the more values are skipped.

Editing the step modes

The mode of a step (play, mute/hold, skip) is indicated by a bi-colored LED above the endless dial:

- green the step is played
- red the step is set to mute or holds the last value
- off the step is skipped

Switching from one step mode to another is ensured by pressing the respective endless dial. When pressing the **Step mode** button you select changeover between play and mute or play and skip. The step mode is indicated by the integrated LED:

- green changeover between play and mute/hold
- off changeover between play and skip

The current step is lit while all other steps are dimmed.

Editing the line parameters

To edit the line parameters you have to start by pressing the **Enter** button. The LEDs of the endless dials 1 and 9-12 will light in orange. Using the endless dial 1 allows you to set the speed irrespective of the selected line. The line parameters indicated in the lower third of the display can be edited using the endless dials 9-12. More line parameters and editing aids (if available) can be displayed by pressing the cursor buttons ◄ and ►. To exit this mode press the **Enter** or **Esc** button.

Linking lines

When you create a note line, all line parameters are initialized with constant values, i.e. all note values are sent with a constant velocity value **Vel** on the fixed Midi channel **Midi**. To ensure that the lines sound more dynamic the velocity can be controlled by a **Vel** line, for example. To do so create a **Vel** line in the same sequence range as the **Note** line.

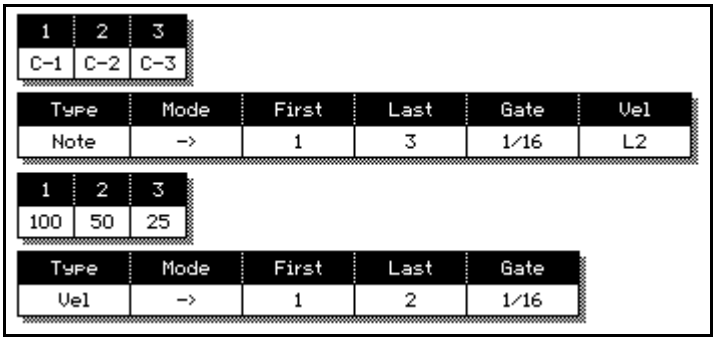
! **Only lines in the same sequence range can be linked.**

Set all steps and line parameters of the **Vel** line as requested and return to the **Note** line. Set the **Vel** line you find following the constant value range (0-127) for the **Vel** line parameters. To do so turn the endless dial 10 beyond 127. All kinds of links are shown one after the other.

i **In principle it is possible to link one line with several other lines, i.e. a** `Vel` **line can control the velocity of several** `Note` **lines.**

You can either have an asynchronous (e.g. ”L2“) or a synchronous (e.g. ”L2s“) link of the **Vel** line to the **Note** line.

With an asynchronous link the current step of the **Vel** line is taken as velocity for the current step of the **Note** line. Since the parameters of each line can be set separately very complex sequence patterns can be created. This allows very lively but in some cases even almost unpredictable structures to be created. An example:

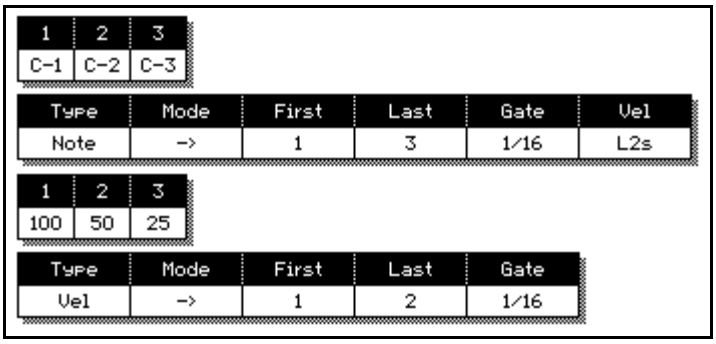


The **Note** line plays the first 3 steps (forward and with constant gate). The **Vel** line plays the first two steps (forward and with constant gate). The **Note** line gets the velocity from the **Vel** line asynchronously.

1	2	3	4	5	6
C-1 (100)	C-2 (50)	C-3 (100)	C-1 (50)	C-2 (100)	C-3 (50)

The created sequence of notes is repeated after 6 steps.

With a synchronous link the parameters of the **Vel** line are completely ignored, only the values of the steps are required. Each step of the **Note** line is assigned the same step in the **Vel** line. An example:



The **Note** line plays the first 3 steps again (forward and with constant gate). The parameters of the **Vel** line are of no importance. The **Note** line gets the velocity from the **Vel** line synchronously.

1	2	3
C-1 (100)	C-2 (50)	C-3 (25)

The sequence of notes created is repeated after 3 steps.

i **Do experiment with the various possible links of the Schrittmacher and the available controlling means of your sound generator. You will come to very interesting results over and over again.**

Line Parameters

A substantial characteristic of the Schrittmacher is that each of the 32 lines available can be freely configured. This allows the Schrittmacher to be adapted to different ways of working and ensures work in many types of music.

We refer you to the ”Editing the line parameters“ section on page 11 for further details.

Type

The **Type** line parameter allows you to set the function of a line. A line can generate note events, for example or vary the velocity of another line or send MIDI controllers.

! The Type **line parameter can only be changed when the preset has been stopped.**

You can chose between the following types:

Off

For a better overall view we suggest you switch all lines you do not need to OFF. The steps of an **OFF** line cannot be edited.

Note

To be able to control a sound generator you need at least one **Note** line. The note events of this line are sent via the MIDI outputs. Using the steps you enter notes which are to be played. All 128 note values within the range from C-0 to G-10 which are defined by the MIDI standard can be set.

i Define several note lines in one sequence range so that you can play polyphonic note sequences.

Vel

To vary the velocity of a **Note** line you can define a **Vel** line. Each step can be set to a value within the range from 0 up to 127. A velocity of 0 will not generate any note event since it is usually interpreted by the sound generator as NoteOff.

Gate

The **Gate** line allows you to vary the time intervals between the steps. The steps can be set within the range from 1/384 to 16 1/1 notes. For the table listing the values to be set we refer you to page 28.

Len

You can control the length of a note in a **Note** line by the **Len** line. The steps can be set within the range from 1/384 to 16 1/1 notes. For the table listing the values to be set we refer you to page 28.

Midi

You can play a note sequence alternately with different sounds by controlling the MIDI channel of a **Note** line with a **Midi** line. This way some kind of wave sequencing can be implemented. Using the steps of the **Midi** line you indicate the MIDI channels (and thus the sounds) on which is to be played. Settings from A01 to B16 are possible with the letter indicating the MIDI output and the number the MIDI channel. The MIDI channel of a **Ctrl** line can also be controlled by a **Midi** line.

Add

Using the **Add** line more offsets can be added to the values of the **Note**, **Vel** and **Ctrl** lines. This way a **Note** line can be transposed. By using an **Add** line the **Vel** and **Ctrl** lines can be additionally varied.

Ctrl

Besides the **Note** line, the **Ctrl** line is the only line which can output MIDI events on the MIDI outputs. Using the **Ctrl** line you can control the controllers and parameters of the sound generator. Using the steps you can set values in the rang from 0 to 127. We suggest you refer to the manual of your sound generator to see which parameters you can control by which controllers. Using the **ID** line parameter you can set the controller you want to use.

! **If you use a** `Ctrl` **line in conjunction with a** `Note` **line, make sure that the same MIDI channel is set in both lines.**

Mode

The play mode of another line can be controlled by a **Mode** line. This way you can change the mode of another line while playing, e.g. from “forward” to “random”.

Depending on the **Type** line parameter you have access to other line parameters such as play direction, MIDI channel, etc.

Type	Line Parameters									
Off										
Note	Mode	First	Last	Sync Mode	Sync Base	Gate	Len	Midi	Vel	Add
Vel	Mode	First	Last	Sync Mode	Sync Base	Gate	Add			
Gate	Mode	First	Last	Sync Mode	Sync Base					
Len	Mode	First	Last	Sync Mode	Sync Base	Gate				
Midi	Mode	First	Last	Sync Mode	Sync Base	Gate				
Add	Mode	First	Last	Sync Mode	Sync Base	Gate				
Ctrl	Mode	First	Last	Sync Mode	Sync Base	Gate	ID	Midi	Add	
Mode	Mode	First	Last	Sync Mode	Sync Base	Gate				

Mode

Using the **Mode** line parameter you set the play mode of a line. The following modes are possible:

->	Forward
<-	Backward
<->	Ping pong; the first and last steps are played once
<=>	Forward / backward; the first and last steps are played twice
?	Random

The **Mode** line parameter can be linked with and controlled by a **Mode** line.

First, Last

First indicates the step of a line with which it starts. **Last** indicates the step with which the line ends. Set one value each from 1 to 16 for either line parameter to define these steps. If one of the steps is skipped, the line is automatically started or ended with the next step. Only those steps are played that are between **First** and **Last**.

As an alternative, you can also define **First** and **Last** with the loop function. For more information about the loop function we refer you to the “Loop” section on page 24.

Sync Mode, Sync Base

With **Sync Mode** you can set automatic or manual synchronization of the line (by pressing the **Sync** button). Synchronization follows the time set in the **Sync Base** line parameter. For the table indicating the values to be set we refer you to page 28. For further information about synchronization we refer you to the “Sync” section on page 24.

Gate

The time interval between to consecutive steps is defined by the **Gate** line parameter. The interval can be set within the range from 1/384 to 16 1/1 notes. For the table indicating the values to be set we refer you to page 28.

The **Gate** line parameter can be linked with and controlled by a **Gate** line.

Len

The **Len** line parameter can only be found for **Note** lines. **Len** determines the length of the notes played and can be set within the range from 1/384 to 16 1/1 notes. For the table indicating the values to be set we refer you to page 28.

i **Setting** Len **is limited by the** Gate **line parameter, i.e. a note is only held until a new note is struck.**

The **Len** line parameter can be linked with and controlled by a **Len** line, Key or Ctrl1-8.

The **Gate** and **Len** line parameters influence the note output as follows: **Gate** sets the interval between two note-on events; **Len** defines the interval between a note-on and the respective note-off event.

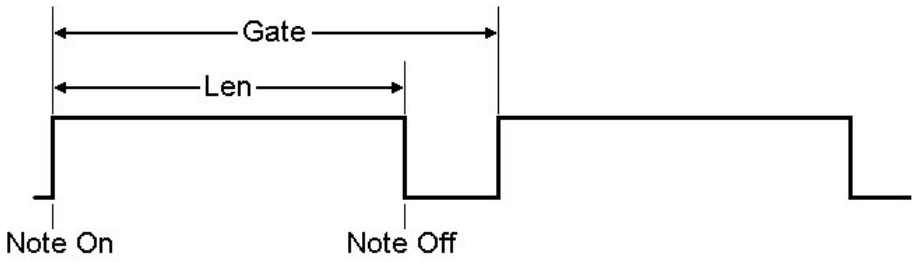


Figure 1 – Effect of Gate and Len on the note output

Midi

The **Midi** line parameter defines the MIDI output and the MIDI channel for a **Note** or **Ctrl** line. You can set values from A01 to B16 with the letter indicating the MIDI output and the number the MIDI channel.

The **Midi** line parameter can be linked with and controlled by a **Midi** line.

Vel

The velocity of a **Note** line can be set by the **Vel** line parameter within the range from 0 to 127. At a velocity of 0 no note event is generated because it is usually interpreted by sound generators as note off.

The **Vel** line parameter can be linked with and controlled by a **Vel** line, Key or Ctrl1-8.

Add

Using **Add** an additional offset is added to the steps of the **Note**, **Ctrl** and **Vel** lines. **Note** lines can be transposed and **Ctrl** and **Vel** lines can be varied in their course. **Add** can only be linked with an **Add** line or a controller. A constant value cannot be set. To do so use the **Add** editing aid described on page 17.

The **Add** line parameter can be linked with and controlled by an **Add** line, Key or Ctrl1-8.

ID

The **ID** line parameters can only be found with **Ctrl** lines. Using **ID** you can select the controller to be sent. The following settings are possible:

Pitch	the **Ctrl** line sends pitch bend events
Ch.Aft.	the **Ctrl** line sends channel aftertouch events
0 ... 120	the **Ctrl** line sends control changes with the set controller ID

The **ID** line parameter cannot be linked with and controlled by any other lines.

! If you edit the ID line parameter while playing the preset, it is possible that some settings of the connected sound generator are changed unintentionally. Therefore always edit ID in the stopped state.

Editing aids

Following the line parameters there are the editing aids which are intended to simplify step processing. Here again inputs are made using the endless dials whose respective LEDs are lit in orange.

Add

Using **Add** you can increment or decrement all step values of a line at the same time. This means that you can transpose a **Note** line very quickly, for example, without having to set each step individually. This function is also very useful if you play a single drum sound with a **Note** line. Using **Add** drum maps can be searched very conveniently.

Rotate

Using **Rotate** you shift all steps of a line to any position to the left or right. Since the step modes (play, mute/hold, skip) are not shifted, this function is also useful for live operation. And again: Try it out. Each experiment will reap a reward!

Setup Menu

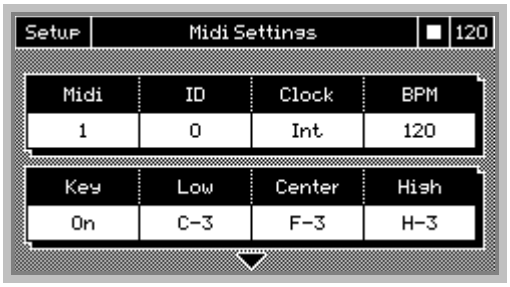
If the Schrittmacher is in the stop or pause mode, you get into the setup menu by pressing the **Setup** button. Mark the requested menu item by means of the cursor buttons ▲ and ▼ or the endless dial 9. By pressing the **Enter** button or the endless dial 9 you select the marked menu item. You exit the menu without making any selection by pressing the **Esc** button.



The setup menu provides the following menu items:

MIDI Settings

The MIDI setup allows setting of some global settings referring to all 4 sequences of a preset. Here basic settings are made such as the MIDI receive channel or the type of clock source.



MIDI 1 ... 16

MIDI indicates the MIDI channel via which the sequences can be changed (e.g. transposed) using the master keyboard. There is no reaction to notes and controller events of the other channels. So remember to set the MIDI output of your keyboard to this channel.

İ **The Schrittmacher is not transparent for incoming MIDI events, i.e. all MIDI data received on MIDI IN will be filtered, except** Timing Clock, Start, Stop **and** Continue**!**

ID 0 ... 126

ID is the device number and serves to differentiate several Schrittmacher in one MIDI setup. Should you use several Schrittmacher, set a different **ID** for each device. If only one Schrittmacher is used, the basic setting (0) does not need to be changed.
.

Clock Int, Ext

To ensure that all devices in a MIDI setup work synchronously to each other a MIDI clock has to be generated. The Schrittmacher can work with two different clock sources:

Internal MIDI clock (**Int**):
The Schrittmacher is the clock master in the MIDI setup, i.e. it generates **Timing Clock, Start**, **Stop** and **Continue** signals which are output on MIDI OUT A. The speed of the clock can be set using the **BPM** parameter.

External MIDI clock (**Ext**):
The Schrittmacher is the clock slave in the MIDI setup, i.e. another device (e.g. a PC) generates a MIDI clock. In this case the Schrittmacher is automatically synchronized with the external MIDI clock. The **Timing Clock, Start**, **Stop** and **Continue** signals generated by the clock master are output on MIDI OUT A. Using an external clock the Schrittmacher can be operated at a faster (or slower) speed than the speed possible by using the internal clock.

İ Internally the Schrittmacher always uses a resolution of 96 ppq (pulses per quarter note). This resolution is four times greater than the MIDI standard (24 ppq) and thus enables a considerably finer setting of the time-dependent line parameters (Gate, Len and Sync Base). Externally the Schrittmacher uses the standard resolution of 24 ppq. This means that you can use the Schrittmacher also in conjunction with other MIDI sequencers without any problems.

BPM 10 ... 250

This parameter is used to set the speed in BPM (beats per minute). Values from 10 to 250 BPM with a resolution of 1 BPM are possible. This setting can also be changed outside this setup namely when editing line parameters.

Key Off, On

If a keyboard is to be used to control the Schrittmacher this use can be “activated” in the setup. The keyboard range to be used is defined by the settings **Low**, **Center** and **High**. If **Key** is set to OFF these settings are of no significance.

Low C-0 ... Center

Low defines the lowest note of the requested keyboard range. The maximum possible value for **Low** is limited by **Center**.

Center Low ... High

If the note defined by **Center** is pressed on the keyboard connected, **Key** provides a value of “0”. Only a note value between the range of **Low** and **High** can be set for **Center**.

High Center ... G-10

High defines the uppermost note of the requested keyboard range. The minimum possible value for **High** is limited by **Center**.

Ctrl1 ... Ctrl8 Int, Pitch, Ch.Aft, 0 ... 120

Controllers can be defined for global controlling. To do so a distinction is made between internal and external controllers. If an internal controller (**INT**) is defined it can only be controlled by the respective endless dial in the **Global** mode. To define an external controller **Pitch**, **Ch.Aft.** or a controller number within the range from 0 to 120 has to be set. An external controller cannot only be controlled in the **Global** mode but also by an external MIDI device.

Besides entitling a controller by its number, a value range can be defined for each of the controllers. The **Low** parameter indicates the output value with “left touch“, the **High** parameter the output value with “right touch”.

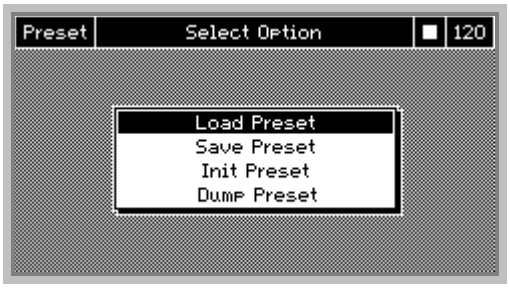
Information

This menu item informs you about the currently installed software version.



Preset Menu

The menu is called by pressing the **Preset** button when the Schrittmacher is in the **Stop** or **Pause** status. Mark the requested menu item by means of the cursor buttons ▲ and ▼ or the endless dial 9. By pressing the **Enter** button or the endless dial 9 you select the marked menu item. By pressing **Esc** you exit the menu without making any selection.



The preset menu provides the following functions to manage the preset:

Load Preset

This function enables loading of a preset from the memory. Initialized presets (empty presets) are entered in the preset list as ”Initial Preset“. To allow loading the requested preset has to be marked and selected in the preset list.



There are two possible ways:

1. Mark the requested preset in the preset list. Using the cursor buttons ▲ and ▼ the marking can be shifted by one memory place using the cursor buttons ◄ and ► it can be shifted by ten memory places. The preset is selected by pressing the **Enter** button.

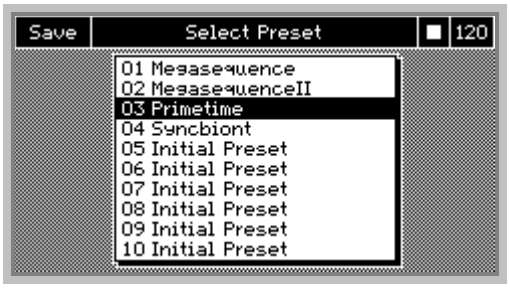
2. Mark the requested preset by turning the endless dial 9. Select the marked preset by pressing the endless dial.

Save Preset

The **Save Preset** function enables saving of a preset in one of the 30 memory places. Saving a preset is effected in two steps:

i **You can stop the saving process of a preset at any time by pressing the** Esc **button.**

1. Mark the memory place into which the preset is to be saved using the cursor buttons ◄▲▼► or the endless dial 9. Select the memory place by pressing the **Enter** button or by pressing the endless dial 9.



2. Create the name of the preset by means of the characters indicated. Mark the requested characters using the cursor buttons or the endless dial 9. Adopt the character by pressing the **Enter** button or the endless dial 9.

   To delete a character already entered select the arrow pointing left (←) in the bottom right corner. The preset is saved when “OK” (bottom right) is selected.

i **To save a preset quickly without any new name turn the endless dial 9 counter-clockwise once and press it.**



In rare cases it is possible that the preset memory has to be reorganized during the saving process. However, this usually happens automatically and takes only a short time.



During reorganization the Schrittmacher must never be switched off since otherwise all saved presets will in all probability get lost.

Init Preset

The current preset can be initialized to have a defined starting point for the new sequences. When initializing a preset, all 4 sequences with all lines and steps as well as the MIDI settings are put into a defined status:

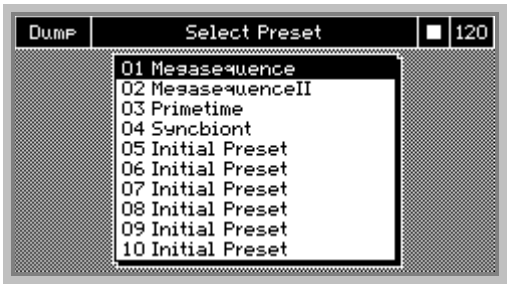
Line	Type	Value	Param	Value	Comments
S1 | L1	Note	C-3	Mode	->	all 16 steps on ”play“
			Gate	1/16	--
			Len	1/16	--
			MIDI	1	--
			Vel	100	--
			Add	Off	--
S1 | L2...L8	Off	--	--	--	--
S2 | L1...L8	Off	--	--	--	--
S3 | L1...L8	Off	--	--	--	--
S4 | L1...L8	Off	--	--	--	--

MIDI settings					
Midi	1	Key	Off	Ctrl1...Ctrl8	Int
Dev. ID	0	Low	C-3	Low	0
Clock	Int.	Center	F-3	High	127
BPM	120	High	H-3	Val	0 | 0

If you load a preset entitled ”Initial Preset“ you will likewise get a preset with the described settings.

Dump Preset

The **Dump Preset** function allows a saved preset to be transmitted to a computer. When you have selected this function you will see a preset list in which you select the preset to be transmitted. Selection is effected as described in the “Load Preset” section.



You can record the preset by means of a MIDI program that can receive and save SysEx messages. If you want to transmit the preset back to the Schrittmacher only the recorded SysEx message has to be played. Ensure that there is an operational MIDI connection between the Schrittmacher and the computer.

Other Functions

Preload Preset

The Schrittmacher allows loading of another preset while playing a sequence and starting it synchronously at the global Sync clock. This enables direct transition between two presets.

To do so press the **Preset** button while a preset is being played. Selection of the preset to be loaded is effected in the same way as for the ”Load Preset“ function. If a parameter is preloaded, a double play symbol is indicated in the display. The preloaded preset is kept ready in the background and can be started by pressing the **Start** button.

Sync

Using the **Sync** button a line can be resynchronized. Synchronization means that the line is set back to the first playable step depending on a **Sync** clock. The **Sync** clock is given by the **Sync Base** line parameter and indicated by the lit **Sync** LED.

When you have pressed the **Sync** button the **Sync** LED is displayed dimmed until the line has been synchronized. Besides this manual synchronization you can also set automatic synchronization by the **Sync Mode** line parameter. In this setting the **Sync** LED remains dimmed and the line is automatically reset with each **Sync** clock.

i **Lines with the play mode set to “random“ cannot be synchronized.**

Not only individual lines can be synchronized but also the whole preset. To do so press the **Sync** button in the global mode. All lines are reset to the first step to be played. The global **Sync** clock is firmly set to 1/1 note.

Loop

In the Loop mode it is very easy for you to define a loop in your line. Press the **Loop** button to change into the Loop mode (the integrated LED is lit). Now you can define the first and the last steps of the loop alternately by pressing the endless dial. You exit the Loop mode by pressing the **Loop** button again (the integrated LED goes out).

i **While the Loop mode is activated the step modes (play, mute/hold, skip) cannot be changed. To do so exit the Loop mode. Steps which are not in the defined loop cannot be changed in the mode even if the Loop mode has been exited.**

Alternatively you can set the first and the last steps of a loop by using the **First** and **Last** line parameters.

Step mode

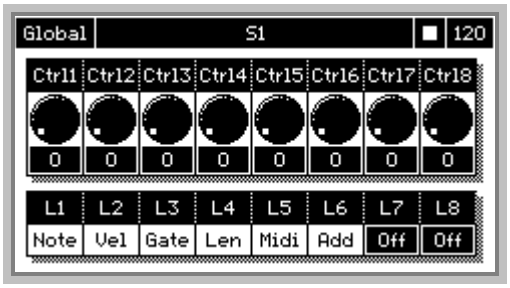
Using the **Step mode** button you can select if the mode of a step is changed between play and mute or play and skip. The step mode is indicated by the integrated LED:

- green changeover between play and mute/hold
- off changeover between play and skip

It is possible for you to switch individual steps of a line to mute or to switch them off completely.

Global

The Global mode enables controlling of a preset on a higher level and is of central importance when working with the Schrittmacher.



In the display you cannot only see the information that the Global mode is activated but also the selected sequence range, the play mode, the speed, the modes of the 8 global controllers and the 8 lines of the selected sequence range.

The modes of the 8 controllers of the Schrittmacher are shown in the upper half of the display as dials. They can be changed by means of the endless dials 1-8. Below the dials you can see the value generated for the respective controller. This part of the display is independent of the sequence range set.

You can configure the functions and value ranges of the individual controllers in the setup. We suggest you read the “MIDI Settings” section on page 18.

In the global mode individual lists of the selected sequence range can be switched on and off. Press a **Line** button to switch the respective line on (white field and black print) and off again (black field and white print) alternately. Change the sequence range by pressing the **Sequence** button to switch the other lines on and off.

Updating the operating software

The Schrittmacher provides a maintenance-friendly function to update the internal operating software without having to replace parts.

A software update is available as a standard MIDI file which can be installed in the Schrittmacher using a sequencer software. You can download this file from our website:

http://www.manikin-electronic.com/schrittmacher

i **You may possibly get a zipped file from our website which includes the new operating software as well as an updated user manual.**

If you have no access to the Internet you can get a floppy disk with the current software version from your supplier or directly from Manikin Electronic. The trade magazines also provide the current operating software on an attached CD-ROM at irregular intervals.

☞ **How to update the Schrittmacher's operating software:**

- Load the unzipped .mid file into your sequencer software.
- Ensure that all cycle or loop modes are deactivated.
- Switch the Schrittmacher on.
- Transmit the .mid file to the Schrittmacher by playing it.

As soon as the Schrittmacher receives the operating software via MIDI you can see the software version and the progress of the file transfer in the display.



Once the file has been completely transferred, the operating software transferred is installed. The installation progress can also be followed in the display.

! **Do not switch off the Schrittmacher while the operating software is being updated. This could cause a complete loss of data so that the Schrittmacher is no longer operational!**



After successful update the Schrittmacher will start up automatically using the updated operating software.

If the file transfer is aborted or if an error occurs, an error message is displayed.



Press the **Esc** button and try again. It may be necessary to reduce the speed of your sequencer program. If other trials are not successful, either, download the file again from the Internet or ask for a new floppy disk to be on the safe side.

Annex

Time and clock table

The Schrittmacher works on an internal time resolution of 96 ppq (pulses per quarter note). The table below shows all values that can be set for the time-dependent parameters: **Gate**, **Len** and **Sync Base**.

1	2	3	4	5	6	7	1/32T (8)	9	10	11	1/32 (12)
13	14	15	1/16T (16)	17	1/32. (18)	19	20	21	22	23	1/16 (24)
26	28	30	1/8T (32)	34	1/16. (36)	38	40	42	44	46	1/8 (48)
52	56	60	1/4T (64)	68	1/8. (72)	76	80	84	88	92	1/4 (96)
104	112	120	1/2T (128)	136	1/4. (144)	152	160	168	176	184	1/2 (192)
208	224	240	1/1T (256)	272	1/2. (288)	304	320	336	352	368	1/1 (384)
416	448	480	2 1/1T (512)	544	1/1. (576)	608	640	672	704	736	2 1/1 (768)
832	896	960	4 1/1T (1024)	1088	3 1/1 (1152)	1216	1280	1344	1408	1472	4 1/1 (1536)
1664	1792	5 1/1 (1920)	8 1/1T (2048)	2176	6 1/1 (2304)	2432	2560	7 1/1 (2688)	2816	2944	8 1/1 (3072)
3328	3584	10 1/1 (3840)	16 1/1T (4096)	4352	12 1/1 (4608)	4864	5120	14 1/1 (5376)	5632	5888	16 1/1 (6144)

Technical data

Voltage supply

Nominal voltage	:	DC 9V
Maximum current consumption	:	0.8A
Maximum power consumption	:	7.2W
Connection	:	2.1mm socket
Polarity	:	– -◉- +

MIDI

Connections	:	MIDI IN, 2x MIDI OUT

Dimensions and weight

Dimensions (width/height/depth)	:	482mm x 132mm (3U) x 74mm 19“ x 5,2” x 2,9”
Overall weight	:	2.5 kg

MIDI implementation chart

Model: Schrittmacher	Midi implementation chart	Date: 01 Feb. 2004 Version: 1.0a

Function ...		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1 – 16 1 – 16	1 1 – 16	
Mode	Default Massages Altered	x x **********	x x x	
Note Number	 True Voice	0 – 127 **********	0 – 127 0 – 127	
Velocity	Note ON Note OFF	o 9n, v=1-127 x 9n, v=0	o 9n, v=1-127 x	
After Touch	Keys Ch's	x o	x o	
Pitch Bender		o	o	7-bit resolution
Control Change		o	o	0 – 120
Prog Change	 : True	x **********	x x	
System Exclusive		o	o	
System Common	: Song Pos : Song Sel : Tune	x x x	x x x	
System Real Time	: Clock : Commands	o o	o o	MIDI Clock Start, Stop, Continue
Aux Massages 	: Local ON/OFF : All Notes OFF : Active Sense : Reset	x x x x	x x x x	
Notes				

Mode 1: OMNI ON, POLY — Mode 2: OMNI ON, MONO — o: yes
Mode 3: OMNI OFF, POLY — Mode 4: OMNI OFF, MONO — x: no

Glossary

Aftertouch

Most modern MIDI keyboards can generate **Aftertouch** messages. If you press down on a key while it is already playing on such a keyboard, this aftertouch generates MIDI messages. This can be used to add an expressive volume swell to the sound character (e.g. vibrato).

Control Change (Controllers)

Using these MIDI messages it becomes possible to change the sound response of the sound generator.

This message basically consists of two parts:

- the controller number which determines what is influenced. It can range between 0 and 120,
- the controller value which determines the intensity of the modification.

Examples of the use of controllers are slowly starting vibrato, movement of the sound in panorama position or influence on the filter frequency.

Gate

In the field of sound technology the term gate is used in several contexts. The literal meaning shows you the basic feature of this term: It can be open or closed or, technically speaking, active or inactive. A gate in the sense of a device is a module which allows a signal to pass or which blocks it, depending on certain marginal conditions. For example, this is used in a noise gate so that only signals with a defined minimum level are allowed to pass to suppress the noise in signal pauses. In the context of analog synthesizers gate is seen as a control signal which can be in either the active or the inactive mode. An example is the keyboard of such a synthesizer. When you press a key, it provides two separate signals: CV and gate. The gate signal is active as long as the key is pressed, then it becomes inactive at once. In sound generation this gate signal may lead to triggering an envelope which controls the VCA.

MIDI

MIDI is short for ”Musical Instrument Digital Interface“. It was developed in the early eighties to link electronic musical instruments of different types and from different manufacturers. Up to that time there was no standard for linking several sound generators and so MIDI was a considerable improvement. From then on it became possible to link all devices using easy and always identical connection cables.
The basic steps are: A transmitter is always connected with one or several receivers. If, for example, a computer is to play a synthesizer the computer is the transmitter and the synthesizer the receiver. For this purpose all MIDI devices (with only a few exceptions) have two or three connections: MIDI IN, MIDI OUT and possibly MIDI THRU. The transmitting device provides the information to the outside world via its MIDI OUT connection. The data are passed on to the MIDI IN connection of the receiver by means of a cable.

The MIDI THRU connection has a special meaning. It makes it possible for a transmitter to reach several receivers. It works in such a way that it provides the incoming signal without any changes. Another receiving device is then simply plugged into the MIDI THRU connector. This process creates a chain in which one transmitter and several receivers are connected. It is, of course, a requested feature that the transmitter can control each individual device separately. Therefore it has to be ensured that the individual devices keep to certain rules among each other.

MIDI Channel

An important part of most messages. A receiving device only reacts to incoming messages if its set receiving channel is identical with the transmitting channel of the message. This makes clear information transfer to a receiver possible. The MIDI channel can be selected within the range from 1 to 16. Beyond this range a device can be switched to Omni. Then it will receive on all 16 channels.

MIDI Clock

The time interval of the MIDI Clock message defines the tempo of a musical piece. It is used for synchronizing time-dependent processes.

Note on / note off

This is the most important MIDI message. It determines the tone pitch and the velocity of the tone generated. The time of its arrival is at the same time the starting point of the tone. The pitch is the result of the transmitted note numbers. It is within the range from 0 to 127. The velocity is within the range from 1 to 127. The value 0 for the velocity means ”NoteOff“, i.e. the note is switched off.

Panning

Designates the panorama position of a sound.

Pitch Bend

Pitch Bend is a MIDI message. Although the functions of the Pitch Bend message are similar to those of the control change messages, it represents a message type of its own. The reason why is above all that the Pitch Bend message is transmitted with a considerably finer resolution than the ”usual” controller. This takes into account that the human ear is extremely sensitive to pitch changes.

Program Change

MIDI messages for selecting the sound program. It is possible to select between the program numbers 1 to 128.

System Exclusive data

System Exclusive data represent the access to the innermost part of a MIDI device. They enable access to data and functions which are not represented by any other MIDI messages. ”Exclusive“ also means that the data indicated here only apply to one single type of device. Each device has its own System Exclusive data. The most frequent applications for this data type are the transmission of complete memory contents as well as the complete device control by means of a computer.

Trigger

A trigger is a triggering signal for events. The nature of the trigger signal can vary considerably. A MIDI note or an audio signal can act as a trigger, for example. The event triggered can also vary considerably. A frequently used application is triggering an envelope.