



Owner's manual

SCHLAGZWERG

General

SCHLAGZWERG combines the powerful sound of analogue drums with the flexibility of a modular system in a compact, convenient desktop unit. This makes SCHLAGZWERG a unique combination of CV-controllable modules, specialized on percussion, and a 6-track CV/Gate-sequencer that can be used as a drum-machine in studio and live environments.

Set-up and connections

Connect the external power-supply to the power-jack. The internal mixer's Out L and Out R are used to connect the unit to an amplifier, a mixing desk or an audio-interface. In addition, the individual instruments offer separate outputs (Outs) that can also be connected to a mixing console. **MIDI-In** allows you to connect a MIDI-keyboard's MIDI out, a MIDI-trigger-pad or a sequencer. Now, use the **On/Off** switch to turn on SCHLAGZWERG.

Functions

SCHLAGZWERG's drum-sounds can either be triggered by the internal sequencer or by MIDI-notes. The following modes are available:

Mode 1: CV1 outputs control voltage according to the 1 V/Oct. standard and **Gate1** outputs a gate-trigger. Use these outputs to control monophonic synthesizers, like KRAFTZWERG. Outputs Gate 2 to 6 send trigger signals to five drum-sounds (internally patched as labeled), while outputs CV 2 to 6 deliver control voltage of approx. 1.8 V/Oct. **CV5** is internally patched to **Decay OH**, while the other CV-outputs need to be patched manually.

Mode 2: Here, all six trigger and CV-outputs work equally.

Mode 3: This mode works like Mode 1 but uses MIDI-commands instead of the internal sequencer.

Mode 4: This mode works like Mode 2 but uses MIDI-commands instead of the internal sequencer.

Mode-Selection

By pressing **Rec** and **Sequence** for one second, the actual mode is displayed, using step-LEDs 9 to 12.

Step 9 = Mode 1 Step 10 = Mode 2 Step 11 = Mode 3 Step 12 = Mode 4

To change the mode, press **Rec** and **Sequence** buttons simultaneously and add the corresponding step-button.

Selecting sequences

SCHLAGZWERG's sequencer can store 16 patterns. Select these sequences by pressing **Sequence** and the corresponding step-button. By pressing **Sequence** (do not hold the button), the LED above will light up. Now, press one of the 16 step-buttons. With the sequencer stopped, the corresponding sequence will immediately be called up. With the sequencer in playback mode, the selected sequence will start after the running sequence is completed. Adjacent sequences can also be called up by external triggers at **Sequence +** and **Sequence -** inputs.

Start/Stop

Use the **Start/Stop** button to start a sequence after selection. A second push of the button will stop the sequence. This function can also be controlled by a trigger-signal at **Start/Stop** input and/or via MIDI. This jack can be used as input (min. +5 volts) as well as output (+5 volts). The first incoming trigger will start the sequencer, the next will stop it.

A - A/B - B

This function selects if a sequence will play sequence part A, part B or AB alternating (which equals two bars length).

Tip: When programming a two-bar-sequence, it is often more comfortable to complete programming part A first, followed by part B. By this, you avoid a constant changing of the step-LEDs.

Sequencer-tracks

The turn-switch on the module's left selects the sequencer-track to be programmed/edited.

Step-Programming

The steps in a track can only be set while the sequence is running, not while the sequencer is stopped. In mode 1 **Gate1** is automatically set with **CV1**-steps.

Trigger (tracks 1-6): To set single trigger-steps, press the corresponding step-buttons. To delete steps, hold the corresponding step-button and press the **Data** control at the same time. This procedure might seem cumbersome but is necessary because of the programming of CV-steps.

CV-Steps: There are two ways to set CV-steps. Like before, you can hold the corresponding step-button and use the **Data** control to specify the CV-value. To change an existing value, press the step button again and use the **Data** control to modify the CV-value. CV-Steps can also be set by holding the step button and press the **Data** control. Here, the CV-value is reset to zero.

CV-tracks also allow tied and sustained control voltages. Press **Rec** as well as the first and last step button of the steps to be combined. When releasing these buttons (the Rec-LED should be lighted), use the **Data** control to specify the CV-value.

When erasing a part of a tied note, the residual will remain as a "new" note.

Saving sequences

Before changing to another CV-track and before switching the unit off, make sure the Rec-LED is not lighted. You may lose data otherwise. Press the **Rec** button to save the track. As confirmation, the LED will turn off. This procedure is not necessary for trigger tracks.

Attention: Saving is possible while the sequencer is stopped or running. However, with the sequencer running, the saving procedure results in a slight delay.

Erasing sequences

As long as a track is in Rec-mode for tied steps (Rec-LED lighted), the sequence can always be erased by hitting the **Sequence** button.

Resetting a sequence

There are two ways to reset a sequence to step 1: A reset can be programmed in track **CV1** by pressing the step button at which you want the sequence to reset and then press Start/Stop. A reset at step 13 will let the sequence jump back to step 1 after step 12 has been played. The same procedure eliminates the reset point.

Secondly, the reset-function can be externally controlled by trigger-impulses sent to the **Reset** input (min. +5 volts), e.g. from another sequencer.

Tempo/Clock

Set the sequence-tempo with the **Data** knob, while holding **Rec**. The corresponding clock-information is also send to **Clock Out** (+5 volts) in order to synchronize clock-dependent modules. The sequencer's internal clock-resolution is 96 clicks per bar. It can be reduced to 16 clicks. The current setting is displayed when pressing and holding **Rec** and **Sequence** for at least one second (LEDs 13 to 16).

Step 13 = 96 internal Step 14 = 96 external

Step 15 = 16 internal Step 16 = 16 external

To change the setting, press and hold **Rec** and **Sequence** plus the respective step-button. At any of the two "external" settings, the sequence-tempo is dependent on the clock-signal at **Clock In** (min. +5 volts).

Shuffle

The sequencer offers seven shuffle intensities. The current mode is displayed, when pressing and holding **Rec** and **Sequence** for at least one second (LEDs 1 to 8). 1 indicates the basic setting without shuffle, 2 to 8 represent an active shuffle function with increasing intensity.

To change the value, press and hold **Rec** and **Sequence** plus the respective step-button.

Info: Shuffle is not available, when using a 16th-clock-resolution (internal/external)!

MIDI

In clock-mode „96 external“, the sequencer can be synchronized to an external MIDI-clock and be remote-controlled via MIDI-start/stop-commands. In system modes 3 and 4, the drum sounds can be triggered via MIDI-notes while control voltages can be output depending on note values. Every CV/gate output-pair uses a proprietary MIDI-channel – the basic channel and the five following channels. In mode 3, CV1/Gate1 deliver a control voltage ranging over five octaves and a dynamic gate-signal (5-9 volts). This mode is meant to control monophonic analogue synthesizers. The remaining five MIDI-channels and gate/CV-outputs send MIDI-note-trigger and control voltages combined or individually in defined key-areas.

For MIDI-notes 36 (C1) to 59 (B2), a trigger-signal and a parallel ascending control voltage are sent with each note. The control voltage ranges from 0 to 9 volts for the two octaves.

Using MIDI-note 60 (C3) allows triggering the drum sound separately.

MIDI-notes 61 (C#3) to 83 (B4) will only send an ascending control voltage (0 to 9 volts) to the corresponding CV-outputs. These can be used independently from trigger notes.

The next octave provides all drum sounds respectively trigger-outputs as separate parallel triggers. This allows easy playing of a complete drum groove.

MIDI-Note 84 (C5) = Trigger 1 (gate-track, only in mode 4, unavailable in mode 3), 86 (D5) = Trigger 2 (BD), 88 (E5) = Trigger 3 (SD), 89 (F5) = Trigger 4 (TT), 91 (G5) = Trigger 5 (OH) and 93 (A5) = Trigger 6 (CY).

The assignment to the instruments only applies to the internal prewired setting. Other connections can be patched, if necessary.

Setting the MIDI-channel

Use the dip-switches to set the MIDI-channel.

Ch.	1	2	3	4	Ch.	1	2	3	4
1	ON	ON	ON	ON	9	ON	ON	ON	OFF
2	OFF	ON	ON	ON	10	OFF	ON	ON	OFF
3	ON	OFF	ON	ON	11	ON	OFF	ON	OFF
4	OFF	OFF	ON	ON	12	OFF	OFF	ON	OFF
5	ON	ON	OFF	ON	13	ON	ON	OFF	OFF
6	OFF	ON	OFF	ON	14	OFF	ON	OFF	OFF
7	ON	OFF	OFF	ON	15	ON	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	16	OFF	OFF	OFF	OFF

MIDI-clock und MIDI-start/stop are prewired internally but are also available at jacks located at the unit's rear panel (lower row). The two jacks in the upper row, **CV** and **GATE**, carry the signal of the MIDI-CV-converter for the selected MIDI-channel.

Drum-Sounds

The drums in SCHLAGZWERG are based upon MFB's modules 04/05/06 and 07 that were altered in some functions. The drums offer a wide control over sound, with most parameters being under CV-control. Compared to the modules, the CV-inputs in SCHLAGZWERG do not offer attenuators because the modulation depth can be set for each sequencer step. When controlling these functions with external CV-sources like LFOs or envelopes, you may need to interconnect attenuators or VCAs.

Please note that control voltages of the CV-track keep their value until it is replaced by a new value. When raising a sound's decay for a step, the longer value will last until another step will lower this voltage again, even if triggers are set meanwhile.

Attention: The CV-inputs allow control voltages ranging from 0 to 10 volts.

General control

The drum sounds are triggered by their corresponding gate-tracks (BD, SD, TT, HH, CY), via MIDI or via their individual trigger-inputs. For the latter, analogue or digital gate-signals can be used. Alternatively, drum pads, dynamic or piezo-trigger-microphones may also be used. Dynamic triggering will not only affect the sound's volume but also slightly attack, decay and pitch.

The **Sens** controls adjust the inputs' sensitivity to internal or external trigger-signals. The highest sensitivity allows triggering at a minimum voltage of around 0.1 volts. The input reacts to the positive slope of the signal.

Bass Drum parameters

The bass drum sound consists of three parts: a basic tone that derives from a triangle-like waveform, a short impulse and a noise part. The basic tone is tuned between 30 to 100 Hz using the **Tune** control. The input **Tune** allows modulation by any CV source. Further pitch modulation is controlled by the parameter **Pitch**, a characteristic sound element found in many analogue bass drums like the famous Simmons electronic drums or Roland's TR909. This parameter controls the duration of a pitch bend with fixed modulation amount. The bend is under control of CV-input **Pitch**. The maximal bending duration is approximately one second.

Decay sets the overall duration of the bass drum sound up to a maximum of approximately two seconds. The CV-input **Decay** allows voltage control of this parameter.

Attack mixes a short impulse signal of pre-defined length with the other sound sources to increase percussiveness. Here, input **Attack** puts this sound-element under CV-control.

Drive controls the amount of distortion applied to the sound. It ranges from light overdrive that will increase the bass drum's perceived loudness and punch to audible distortion as used in styles like Techno, Big Beat or Drum'n'Bass. In many cases, the usage of **Drive** will make an external distortion unit dispensable. This parameter can only be set manually.

Snare Drum parameters

The sound of the snare drum consists of three elements: two oscillators that use triangle-shaped waveforms and a noise partial. The oscillators' pitch is adjusted using the **Tune** control. This pitch can be modulated by any CV-voltage connected to CV-input **Tune**.

The second path to pitch modulation is the **Pitch** parameter. This control sets the duration of a pitch bend effect that is preset in modulation intensity. By using the CV-input **Pitch** there is precise control over the pitch bend's duration. The maximum bend time lasts approximately one second.

Snap sets the total duration (Decay) of the snare drum's noise part. This parameter is under CV-control at CV-input **Snap**. By applying 0 volt, the noise partial is deactivated.

Decay sets the total duration (Decay) of the snare drum's tonal part. This parameter is under CV-control at CV-input **Decay**.

Noise continuously adds the noise component to the sound. This parameter can only be set manually.

Tom parameters

The sound of the tom consists of three elements: a base oscillator that uses a triangle-shaped waveform, a faster decaying harmonic that also use a triangle-like waveform and a short impulse signal.

Tune sets the base frequency between approx. 60 Hz and 200 Hz. This pitch can be modulated by any CV-voltage connected to CV-input **Tune**. By this, it is possible to create High-, Mid- and Low-Toms within the same pattern.

The second path to pitch modulation is the **Pitch** parameter. This control sets the duration of a pitch bend effect that is preset in modulation intensity. This is a typical element of analogue tom sounds like Simmons or the TR909. By using the CV-input **Pitch** there is precise control over the pitch bend's duration. The maximum bend time lasts approximately one second.

Decay sets the total duration (Decay) of the tom's tonal part (up to two second). This parameter is under CV-control at CV-input **Decay**.

The **Pan** control places the tom-sound in the stereo-panorama. This parameter can be controlled by external sources using the CV-input **Pan**. Place the **Pan** control fully clockwise when applying a CV-voltage for modulation.

Tune und **Pan** can be coupled by CV-control to imitate the left-to-right tom-setup of an acoustic drum set.

Attack mixes a short impulse signal of pre-defined length with the other sound sources to increase percussiveness. This parameter can only be set manually.

Cymbal/Hihat parameters

Hihat and cymbal share the same sound source – a mix of six differently tuned square-oscillators. While the hihat is generated using a single band-pass-filter, the cymbal sound uses two differently adjusted band-pass-filters.

The overall pitch of this oscillator-mix is adjusted manually using the **Tune** control. Since hihat and cymbal share use the same sound source, this control will affect both instruments.

Cymbal

The cymbal sound can be adjusted in decay using the **Decay CY** control. The length of the sound can last up to a few seconds. The cymbal's decay can also be externally controlled by CV-input **Decay CY**.

Tone CY sets the balance between the two band-pass-filters. Turn counter clockwise, to enhance the lower tuned filter that is used to create the shorter attack-part of the cymbal sound. When turned fully clockwise, you will hear the slightly higher tuned filter, which builds the decay phase of the cymbal sound. This parameter can only be set manually.

Hihat

While the Closed Hihat's decay is factory set, the Open Hihat's decay can be adjusted using the **Decay OH** control. At maximum, the sound lasts for more than one second. The parameter can be externally controlled by CV-input **Decay OH**. It is internally connected to sequencer track **CV5**.

The sequencer's Hihat track is a specialty: Trigger-track 5 controls the Open Hihat (OH), while CV-track 5 controls its decay. Setting a low CV-value results in a short sound like a closed hihat. For an open hihat, set a high CV-value for the corresponding steps. Make sure, the following steps always have a low CV-value again, if you want a closed hihat to sound here. If you prefer separate tracks for open and closed hihats, you may use Gate-track 1 for the Closed Hihat, unless this track is not yet used to control an external synthesizer. For this, you need to connect **Gate1** and **Trig HH** by a patch cable.

Mixer

The mixer controls the levels and panning of all drum sounds except for the tom sound, where the panning is already set in the instrument's section.

**Ing.-Büro M. Fricke • www.MFBerlin.de
Neue Str. 13 • 14163 Berlin • Germany
Fon: 030/801 56 52 • Fax: 030/802 36 13
E-Mail: m.f.b@t-online.de**