

Operating Manual

Drum-Computer

MFB-503

General

The MFB-503 is a drum-computer that offers five editable instruments. Bass Drum, Snare Drum and Toms work fully analogue while Cymbal and Hihat each rely on two sampled waveforms. All instrument's editable parameters are stored within a respective pattern. In addition, the MFB-503 offers 90 memory locations for user-defined drum-kits. Up to 90 programmable patterns are also available, with a length of one or two bars each. Finally, these patterns can be chained to form up to 90 songs.

Set-up and connections

Connect the external power-supply to the **Power**-jack. **MIDI-In** allows you to connect a MIDI-keyboard, a MIDI-trigger-pad or a sequencer. **Stereo Out** (TRS) is the main line-level analogue output. Use this jack to connect the MFB-503 to an amplifier, a mixing desk or an audio-interface (You may need to use an adaptor-cable to match the input connections of that device). Additionally, Bass Drum and Snare Drum offer individual outputs (1/4", TS). When connected these instruments are automatically subtracted from the **Stereo Out**. Now, use the **On/Off** switch to turn on the MFB-503.

Memory

The MFB-503 is user-programmable with each 90 memory locations for Songs, Patterns and every single Instrument. The locations are accessed by first pressing the relevant button **Song**, **Pattern** or **Instr**., followed by one or two STEP buttons. Pressing a single digit (1-9), calls up the first nine memory locations while combing two STEP buttons (1-9) access the higher memory locations, e.g. 7+3 = 73. The range goes from 1-99 with 10, 20…90 not being addressable. (Therefore, the MFB-503 offers 90 memory locations.)

Instruments

The step buttons (1/BD...16/HH) are used to trigger the individual drum sounds. Each instrument offers a pair of adjacent buttons. The left button triggers the sound in standard volume, the right button triggers with accent.

To enter Edit-Mode for an instrument, press and hold **Instr.** and select the instrument, e.g. **BD**. After releasing **Instr.** the display shows:

VOL	TUN	BD	DEC	PIT
127	043	12	056	063

The instrument's memory location is displayed in the center – it is not editable. Use the four encoders to edit the respective parameters. The leftmost encoder knob can be pressed to access a second display page that is only available for the Bass Drum instrument. Besides VOL (Volume), that is available for all instruments, the following parameters are accessible:

Bass Drum TUN (Tune) sets the Bass Drum's basic pitch. DEC (Decay) controls the release length of the sound. PIT (Pitch) controls the duration of a pitch modulation. DRV (Drive) sets the amount of overdrive for the Bass Drum and ATT (Attack) continuously adds the sound of an impulse signal at the instrument's start.

Snare Drum TUN (Tune) sets the Snare Drum's basic pitch. DEC (Decay) controls the release length of the noise sound-component, which is controlled in volume by NOI (Noise).

Tom TUN (Tune) sets the Tom's basic pitch. DEC (Decay) controls the release length of the sound. PIT (Pitch) controls the duration of a pitch modulation. Note, that there is only one Tom sound source available in the MFB-503. However, there are three storage locations that are spread over the panorama as Low Tom (left), Mid Tom (mid) and Hi Tom (right).
Cymbal MIX sets the balance between the two available samples. With this value set to "000", only sample 1 will sound, while at "127" only sample 2 will sound. DEC (Decay) controls the release length of the sound. TUN (Tune) sets the basic pitch.
ATTENTION! TUN always sets the pitch of the Hihat and the Cymbal at the same time. There is no separate tuning available for the Cymbal and Hihat sounds.
Hihat MIX sets the balance between the two available samples. With this value set to "000", only sample 1 will sound, while at "127" only sample 2 will sound. DEO (Decay Open) controls the release length of the Open Hihat, while DEH (Decay) sets the release length of the Closed Hihat.

Kit

Instruments can be combined to Kits. Call up a Kit by pressing and holding **Kit** and selecting any memory location 1 to 99 with the Step buttons. The display will show the Kit memory location as well as the numbers of the included instruments. Press the leftmost encoder to access display page two.
To create a Kit press **Record** (LED on) and use the encoders to select the individual instrument numbers. Press **Record** again to store the Kit (LED off).

Pattern

Press **Play** to start and stop the sequencer. The first encoder (TEMP) sets the tempo. **A/B** toggles between Part A and Part B and an alternating A/B sequence.
To select a pattern:
Press and hold **Pattern** and use the step buttons to recall a memory location. Switching patterns can also be done on the fly – a new selected pattern will start playing after the actual running pattern is completed.

Programming

Prior to recording, select the pattern you wish to program. Start the sequencer by pressing **Play**. In case there already is a rhythm, you can erase the full pattern by pressing and holding **Record** and **Pattern** for at least two seconds – just until the LED turns off. Now program the instruments as follows:
In Play-mode press and hold **Record** and press the instrument-button you wish to program, e.g. 1/BD or 2/BD (the latter in case you wish to set accented beats). The instrument's track is now displayed in a step-lane. All you need to do is to set or delete the beats for the steps by pressing the respective step buttons. To change the instrument, press and hold **Record** again and press the next instrument of your choice, e.g. 3/SD for the snare drum.
A pattern does not necessarily need to have 16 steps. To limit the pattern's length simply define the end by programming the instruments 13/OH and 15/HH to play on the same step. Now, press **Record** to end programming and save the pattern with its sounds.

Song memory locations

The MFB-503 offers 90 song memory locations, each holding up to 128 patterns. Here, you set a sequence play back your programmed patterns automatically. Use **Song** and the step buttons (1...99) to select a song. Press **Play** will play the stored patterns in the programmed sequence.

Recording a song

Press **Rec** (LED on). Now, you can enter a pattern sequence, pattern by pattern. First, select if A or B parts are to be saved. Next, select the first pattern, using the step buttons and confirm your entry by pressing the leftmost encoder. Now, continue in the same matter for further patterns. Complete and save the song by pressing **Rec**.

Shuffle

The MFB-503 offers 15 different shuffle styles. These can be called up by turning the **SHUF** encoder while programming a pattern. The shuffle setting will be saved within the pattern. The default is Shuffle setting is Shuffle=01. Erasing a pattern will also reset the shuffle setting back to default.

Setting the MIDI-Channel

A pattern's MIDI channel is set by pressing and holding **Pattern** selecting the channel with the third encoder knob. Besides the 16 channels, an additional value "0" is available. This is meant to be used as pure sync source, in case the controlling sequencer already uses all MIDI channels.

MIDI Sync

With the MFB-503 set to internal sync, incoming MIDI start, stop and clock information is ignored. The commands are only received when the MFB-503 is set to external sync. To do so, set the leftmost encoder knob (**TEMP)** to "000".

MIDI Control

All Instruments can be triggered by MIDI. Kits is set to respond to note numbers 036 - 047. Starting from note 048 each instrument can be played dynamically over an octave-range with 12 different tunings. Hihat and und Cymbal vary the mix parameter instead of tuning. All parameters can be accessed by controllers. Calling up the pattern again (or a new pattern) will reset to the stored parameter settings.

Mute

Instruments can be switched on and off in **Instr.-mode** by pressing the leftmost encoder knob. This function is unavailable for the bass drum, since this function calls up the second display page here. Only the instruments played by the sequencer are muted, while manual and MIDI-triggering are still active.

Presets

Memory locations 1...9 include factory set patterns that are repeated in memory locations 11...19 to 71...79. Memory locations 81...89 and 91...99 hold the patterns found in MFB-501 and MFB-KULT in two variations. These are:
Disco, Heavy, Rock, Hard Rock, Slow Rock, Country, Slow Blues, Latin and Funk Rock.

Midi Implementation

Note ON	Note	Velocity
BD	36	63…127 = Accent
SD	38	63…127 = Accent
LT	41	63…127 = Accent
MT	43	63…127 = Accent
HT	45	63…127 = Accent
CY	46,47	63…127 = Accent
OH	39,42	63…127 = Accent
HH	40,44	63…127 = Accent
BD	48…59	0…127 -> Level
SD	60…71	0…127 -> Level
LT	72,73,78,79	0…127 -> Level
MT	74,75,80,81	0…127 -> Level
HT	76,77,82,83	0…127 -> Level
CY	84…89	0…127 -> Level
OH	90,92,94	0…127 -> Level
HH	91,93,95	0…127 -> Level

Contr.Change	No	Value
BD Level	8	0…127
BD Tune	9	0…127
BD Decay	10	0…127
BD Pitch	11	0…127
BD Drive	12	0…127
BD Attack	13	0…127
SD Level	16	0…127
SD Tune	17	0…127
SD Decay	18	0…127
SD Noise	19	0…127
LT Level	24	0…127
LT Tune	25	0…127
LT Decay	26	0…127
LT Pitch	27	0…127
MT Level	32	0…127
MT Tune	33	0…127
MT Decay	34	0…127
MT Pitch	35	0…127
HT Level	40	0…127
HT Tune	41	0…127
HT Decay	42	0…127
HT Pitch	43	0…127
CY Level	48	0…127
CY Mix	49	0…127
CY Decay	50	0…127
CY Tune	51	0…127
HH Level	56	0…127
HH Mix	57	0…127
OH Decay	58	0…127
HH Decay	59	0…127