Audiothingies DoubleDrummer
User manual firmware version 1.0.0 – preliminary version 1

Overview

Specifications

The DoubleDrummer is a 12-voice drum sound generator. It is divided into 4 main sections:

The synthesis section

This section features 6 different instruments: bass drum, snare drum, tom tom, clap, cowbell and hi hat.

Each of these 6 channels has been fine tuned to provide a wide range of sounds within a limited set of 6 parameters per channel for the best possible user experience.

The sample player engine

With 6 channels and 56 internal drum sounds, these can be useful to provide more natural sounding sounds that can be more difficult to synthesize within a limited parameter set, such as cymbals for example.

But they’re also great for those “in ur face” 80’s kick and snare sounds.

The mixer

Each of the 12 instruments has its own mixer settings, with drive, bitcrusher, pan, main volume and fx send level.

The FX’s

2 “AUX SEND” effects are available: delay and reverb. Each one of the 12 instruments can be setup to use either one or the other.

A multi FX containing samplerate reduction, bitrate reduction and a 2-pole lowpass filter is available on the master bus.

Front panel

On the front panel you will find:

- 2 x 24 characters LCD screen – Black on white
- 6 encoders with pushbuttons
- 9 pushbuttons with their associated LEDs
- 1 volume knob

Rear panel

On the rear panel, from left to right on the above picture

- Audio outputs (use left output when using mono)
- MIDI connectors
- USB port – used for USB MIDI communication with a USB host and firmware updates (a SYSEX file sent over USB MIDI)
- 9V DC input socket (Center positive polarity, 2.1mm plug, 200mA minimum)
- Power switch

Quick start

1. Connect audio outs to a mix table, turn the volume knob fully clockwise.
2. Connect a MIDI keyboard / sequencer into the DIN MIDI Input.
3. Power the DoubleDrummer with a 9V DC, center positive, 2.1mm plug PSU
4. Play C1 on MIDI channel 1, you should hear the bass drum playing
   The other notes triggering the different instruments are listed in the MIDI Map section of this manual
5. Press Load
6. Turn encoder 6 or press encoders 4/5 to navigate thru the patches. Press Load again to load selected patch, press Home to cancel and return to previously loaded sound.

Using the DoubleDrummer

Navigating pages

How to navigate throughout the DoubleDrummer architecture?

Parameters are mapped across different sections accessed by pressing a corresponding button on the front panel.

When a section has several pages, you access them by successively pressing the same button several times. When you are on the last page, it returns to the first one.

For example, pressing FX several times will make you travel the following pages: DLY > REV > MFX > DLY > REV > MFX etc.

Some sections (the ones labelled in red under the white round buttons) are accessible by simultaneously pressing Home [shift] + another button. For example [shift] + FX will take you to the System page.

The encoders can be pushed to access menus that are shortcuts to specific parameters (level/pan/fx send/fx type and mute).

Editing parameters

The LCD provides up to 6 parameters to edit depending on the menu you are currently editing

Simply use encoders 1-6 to change their corresponding parameter value.

Main page | HOME

This is where you land when you power your DoubleDrummer

```
P001     drv smp bit cut
InUrFace  15   0   0 120
```

You get the program number and name as well as shortcuts to 4 different parameters.

HOME page parameter shortcuts

These 4 parameters can be set per preset, among the FX (delay, reverb and master fx) parameter set.

To change these parameters, press and hold FX button

```
encoder  en3 en4 en5 en6
assign   smp bit cut res
```

Use encoders 3 to 6 to change the displayed parameter

Trigger activity Viewer

You also have access to a second screen by pressing HOME a 2nd time, this screen replaces program number and name with a trigger activity viewer

```
[][][][][][]drv smp bit cut
[][][][][][] 15   0   0 120
```

The 6 trigger viewers on the upper line are tied to the synthesis channels whereas the 6 trigger viewers on the bottom line show the S1 to S6 instruments activity.

Instrument parameters

Bass drum | BD

This instrument generates classic bass drum sounds.

```
BD-P atk dcy hrm bnd tim
  64 100  48  32  64  32
```

- BD-P pitch
- atk amount of clic transient
- dcy decay time
- hrm odd harmonics amount
- bnd pitch mod amount
- tim pitch mod decay time

Snare drum | SD

This instrument is capable of generating snare drum sounds, and is very versatile especially thanks to its noise-related parameters.

```
SD-P -decay- nze col emp
  64  50  72 100  80   0
```

- SD-P tone pitch
- decay1 tone decay time
- decay2 noise decay time
- nze noise level
- col noise color
- emp noise emphasis (filter resonance)

Tom tom | TT

This instrument is a bit special, as it can be triggered by 3 different MIDI notes generating 3 different pitches, while remaining monophonic.

```
 TT-P low  hi dcy mod pan
   64  -5  +5 100  80 +32
```

- TT-P main tone pitch
- low low tom pitch (relative to main tone pitch)
- hi hi tom pitch (relative to main tone pitch)
- dcy decay time
- mod pitch modulation amount
- pan tom tom pan spread (relative to pan parameter set in mixer page)

Tom tom in sample mode

In sample mode (see Instrument setup page), tom tom channel is slightly different than a classic sample channel, as it provides 3 note triggers to play the same sample at 3 different pitches, each with a different pan setting.

```
 TT-P tun dcy low  hi pan
  tt1 -32 127  -5  +5 +24
```

- TT-P sample (tt1 to tt4)
- tun sample tuning
- dcy sample decay time
- low low tom pitch (relative)
- hi hi tom pitch (relative)
- pan tom tom pan spread (relative to pan parameter set in mixer page)

Clap | CP

This instrument is capable of generating clap sounds

```
CP-P atk dcy     col emp
      50  24      80  32
```

- atk attack “burst” time
- dcy noise decay time
- rev “fake reverb” decay time
- col noise color
- emp noise emphasis (filter resonance)

Cowbell | CB

Generated with 2 detuned triangle waves with their harmonics being filtered with a bandpass filter. Can also generate claves or beep sounds.

```
CB-P off bal dcy hrm emp
  68  64  64  64  -5  32
```

- CB-P tune
- off tuning offset
- bal oscillator balance
- dcy decay time
- hrm harmonics frequency offset
- emp emphasis (filter resonance)

Hi Hats | HH

The classic noise filtered hi hat trick

```
HH-P cls opn     col emp
       30  50     115  94
```

- cls closed hat decay
- opn opened hat decay
- col noise color
- emp noise emphasis (filter resonance)

Hi Hats in sample mode

When in sample mode (see Instrument setup page), the hi hats instruments is slightly different than a classic sample instrument, as 2 hats samples are used together to provide closed and opened hat sounds, each with its own decay time

```
HH-P tun cld opd cut res
 hh1   0 100 127   0   0
```

- HH-P hat sample (hh1 to hh4)
- tun tuning offset (+- 1 octave)
- cld closed hat sample decay time
- opd opened hat sample decay time
- cut negative value: lowpass filter cutoff frequency
  positive value: hipass filter cutoff frequency
- res filter resonance

Sample 1 to sample 6 | S1 to S6

```
S1-P tun dcy cmp cut res
 bd5   0 101 104 -35   0
```

- S1-P sample slot
- tun tuning offset (+- 1 octave)
- dcy sample decay (1 – 100%)
- cmp sample “compression” (source dependent - more effective on longer sounds)
- cut negative value: lowpass filter cutoff frequency
  positive value: hipass filter cutoff frequency
- res filter resonance

Instrument Mixer page

This is the 2nd page of an instrument, for example to access clap mixer page, press CP two times, and to access sample 3 mixer page, press [shift] + S3 two times.

```
BD-M drv bit pan lvl  fx
  on  10   0   0 100   0
```

- BD-M channel status (on, means mute is off)
- drv drive level
- bit bit reduction level
- pan panoramic
- lvl level
- fx effect send level (see instrument setup page to choose the send fx)

Instrument setup page

This is the 3rd page of an instrument, but it is kinda “hidden”: to access a specific synthesis instrument setup page, press and hold its button for 1s, for example, to access the cowbell instrument setup page, press and hold CB, and to access a specific sample instrument setup page, press and hold shift + its corresponding button, for example, to access the sample 6 instrument setup page, press and hold [shift] + S6

- BD-H — channel type (sample / synthesis) – Synthesis channels only
  synthesis instruments can be turned into sample instruments
- vel — velocity sensivity
  adjusts how velocity sensitive the instrument will be
- fx — fx send type (delay/reverb)

Mixer shortcuts

To balance sounds in a mix, it may be easier to have access to all the instrument levels in a single screen, this is why there are some mixer shortcuts, and these can be accessed by pressing an encoder button.

Level

Press encoder 1 to access the volume level of all 6 synthesis instruments.
Press encoder 4 to access the volume level of all 6 sample instruments.

```
 L BD  SD  TT  CP  CB  HH
  100 127  75 127  70 100
```

Pan

Press encoder 1 twice to access the pan level of all 6 synthesis instruments.
Press encoder 4 twice to access the pan level of all 6 sample instruments.

```
 P BD  SD  TT  CP  CB  HH
    0   0   0   0 -58 +25
```

FX Send level

Press encoder 2 to access the FX send level of all 6 synthesis instruments.
Press encoder 5 to access the FX send level of all 6 sample instruments.

```
 F BD  SD  TT  CP  CB  HH
    0   0  53  63  99   0
```

FX Send type

Press encoder 2 twice to access the FX send type for all 6 synthesis instruments.
Press encoder 5 twice to access the FX send type for all 6 sample instruments.

```
F BD  SD  TT  CP  CB  HH
 dly rev rev dly rev dly
```

Channel status (Mutes)

Press encoder 3 to access the on/off status of all 6 synthesis instruments.
Press encoder 6 to access the on/off status of all 6 sample instruments.

```
M BD  SD  TT  CP  CB  HH
  on  on off off off  on
```

Effects | FX

Delay

Stereo delay with a 2-pole lowpass filtered in the feedback loop.
Be careful with feedback and resonance settings, these can make the delay auto-oscillate.

```
  DLY tim fbk     cut res
       64  95      79  70
```

- tim delay time
- fbk delay feedback
- cut filter cutoff frequency
- res filter resonance

Reverb

A classic mono-in / stereo out plate reverb

```
  REV pre tim dif cut dmp
       25  90 100 115   0
```

- pre pre-delay time (0-200ms)
- tim reverb decay time
- dif reverb diffusion
- cut input cutoff frequency
- dmp hi frequency damping

Master FX unit

A multi effect unit on the master stereo bus with drive, samplerate reduction, bitrate reduction and a 2-pole lowpass filter

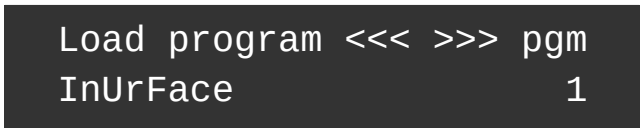
```
  MFX drv smp bit cut res
       10  15   0 100  80
```

- drv drive level
- smp samplerate reduction level
- bit bitrate reduction level
- cut filter cutoff frequency
- res filter resonance

Loading / saving a patch

Load menu | LOAD

Press Load if you want to load a pre-programmed patch from your DoubleDrummer’s memory.



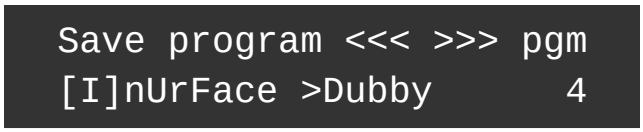
Turn encoder 6 to quickly navigate and load thru the patches.
Press encoder 4 to select the previous patch.
Press encoder 5 to select the next patch.

Press LOAD again to load the patch into the edit buffer.
Press HOME to cancel

Tip: Loading a sound and then canceling the load action can be used as a compare function

Save menu | Save

In this menu you can save your edited patch to the DoubleDrummer’s memory.

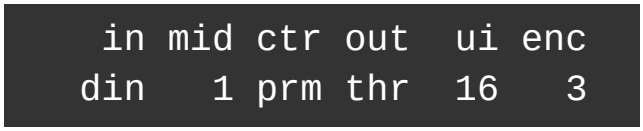


Turn encoder 6 to select the memory destination.
Press encoder 4 to select the previous patch.
Press encoder 5 to select the next patch.
Use encoders 1 and 2 to edit the patch name.

Press LOAD to confirm the save action.
Press HOME to cancel.

System settings | System

These settings are global to the DoubleDrummer, and will be auto-saved when you turn it off



- in — MIDI data input (5-pin DIN | USB)
- mid — Receiving MIDI channel (1 to 15)
- ctr — MIDI CC control mode
  prm: parameter mode on 1 MIDI channel
  mix: mixer mode on 1 MIDI channel
  p+m: parameter + mixer on 2 MIDI channels
- out — MIDI out mode (thru | cc)
- ui — “popup” helper window hold time (0 to disable)
- enc — encoder acceleration

MIDI Map

All 12 instruments use the same MIDI channel (set in System settings – see system menu page), and they are triggered with the different MIDI notes you can find in this table

Instrument	MIDI note number	MIDI note name
Bass drum	36	C1
Snare drum	38	D1
Lo Tom	43	G1
Mid Tom	45	A1
Hi Tom	47	B1
Clap	39	D#1
Cowbell	56	G#2
Closed Hat	42 and 44	F#1 and G#1
Opened Hat	46	A#1
Sample 1	35	B0
Sample 2	40	E1
Sample 3	54	F#2
Sample 4	58	A#2
Sample 5	49	C#2
Sample 6	51	D#2

MIDI CC control

To be written...

Cheat codes available at startup

Some hidden functions are available when powering the DoubleDrummer while pressing some buttons for 2 seconds:

Factory Reset

Hold Shift + System at power up until the factory reset menu appears.

Performing a factory reset will erase all presets/settings with the provided factory ones, so don’t forget to save your custom patches before doing this.

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