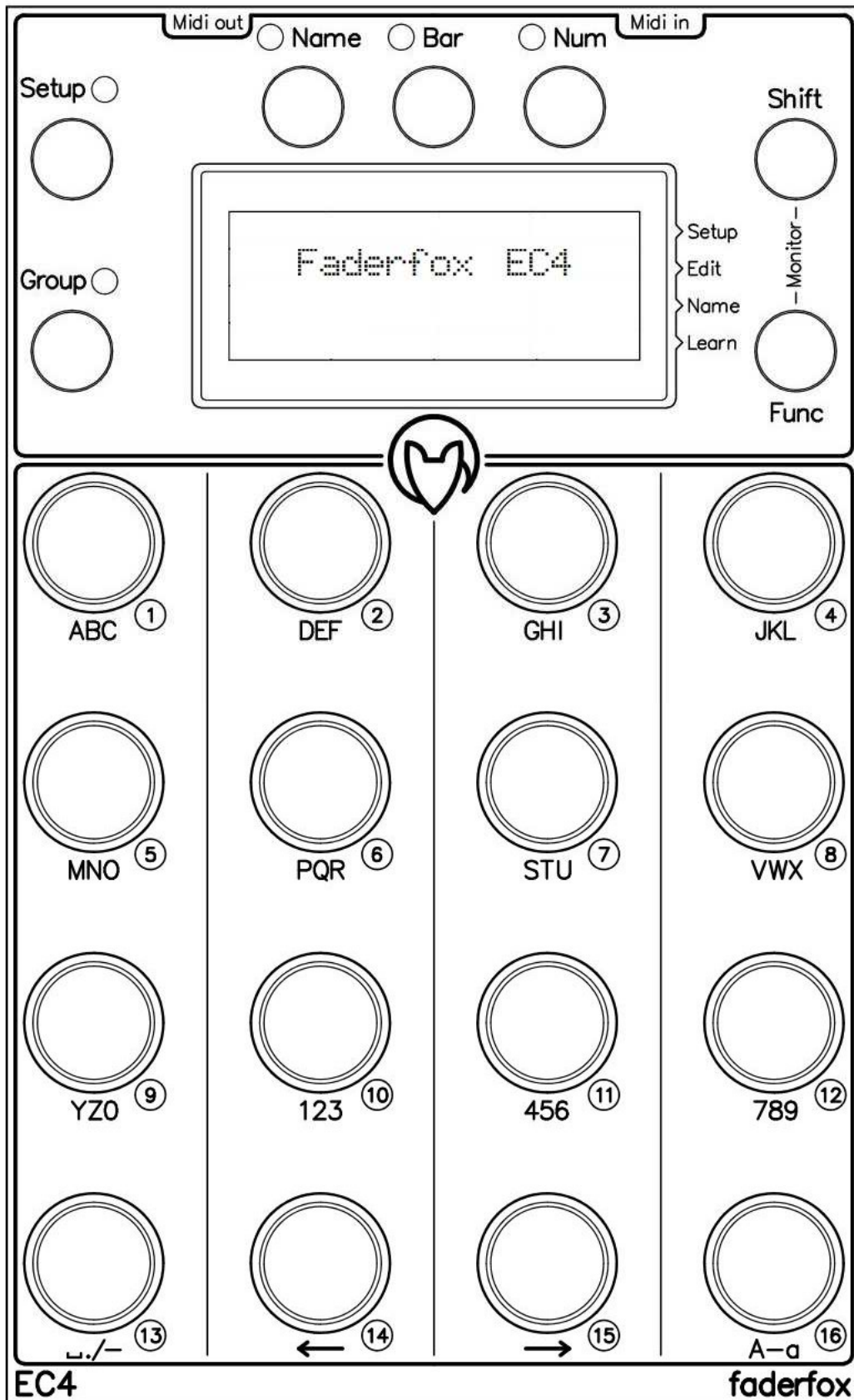


# micromodul EC4



## User manual

## **Provision of guarantee and product liability**

The seller warrants for faultless material and proper manufacture for a period of 24 months from the date of sale to the end user.

Excluded from the stated guarantee are defects on parts as the result of normal wear-and-tear. These parts are mostly faders (sliding guides), potentiometers, encoders, buttons, switches and touchpads.

Also excluded from the guarantee are damages that are the result of :  
incorrect or inappropriate handling, excessive force, mechanical or chemical influences, incorrectly connecting the instrument with other instruments, incorrect or inappropriate use.

The warranty is void if the instrument is opened or changed. In addition, there is no warranty for individual parts and components (in particular, semiconductors) and disposables/ consumables. The seller is not liable for consequential damages which are not the result of criminal intent or negligence on his part. The following conditions must be met in order to claim the warranty services:

- Instrument is either in its original packaging or similar packaging.
- Copy of the invoice with the serial number clearly visible.
- Meaningful error report or description of the error is attached.

The buyer assumes all costs and dangers of return shipments to the manufacturer. Since the user's manual which is included with each instrument also affects the warranty conditions (especially regarding safety issues), it is absolutely essential that you read through and follow all instructions.

## **Safety precautions and servicing**

- Instrument's intended use is based on the functions and procedures contained in this manual
- Read all instructions for use as well as all enclosed literature before using the instrument
- Use only in closed rooms (not for outdoor use)
- Never use in a moist or humid environment (laundry rooms, swimming pools, etc, ...)
- Not for use in the vicinity of heat sources (radiators, ovens, etc, ...)
- Operational temperature is in the range of 0° - + 40° C
- Not for use in the vicinity of flammable material
- The instrument should not be in direct or prolonged contact with sunlight
- Dusty environmental conditions should be avoided
- Connect only to USB ports of computers or hubs
- No foreign objects are permitted inside the instrument casing
- No liquids should get inside the instrument casing
- Never let the instrument fall to the ground (casing and/or control elements may be damaged)

If the instrument must be opened (for example, to remove foreign objects from the casing or for other repairs), this may only be done by qualified personnel. The USB-cable must be disconnected before opening the instrument. Guarantee is void for defects that occur if the instrument was opened by an unauthorised or unqualified person.

Use a soft towel or brush to clean the instrument. Please do not use any cleaning liquids or water, so you avoid any damages to the instrument.

## **Package contents**

- Device
- USB cable (with angle plug)
- Midi adapter cable (with angled 3.5mm jack plug)
- Manual / Quick start guide

## Introduction

Thank you for choosing the Faderfox controller. Being one of the world's smallest controllers, it is designed expertly for studio and live use. All Faderfox controllers are professionally hand crafted in Germany, ensuring high quality for every unit.

### **EC4 is a universal controller for all kinds of MIDI controllable hard- and software.**

The all-rounder has 16 gridless push-encoders, 7 function buttons and a large OLED-display. Encoders are switchable to 16 groups that allow controlling a total amount of 256 control parameters per setup. The display shows the current values of all controls or editable encoder/group/setup names.

Various kinds of MIDI commands are possible, like program change, pitch bend, aftertouch, NRPN, and control change in relative and absolute mode with different acceleration amounts. All these properties are easily and efficiently programmable on the device, allowing personalized customisation for each separate control.

The encoders can work as high resolution 14bit controllers too (NRPN, control change or pitch bend). This makes them suitable for sensitive parameters like resonating filter cutoffs, etc.

Use the internal 16 setups to save your individual settings. Backup and restore of all settings by SysEx dumps are possible too.

**The factory settings are perfect to control music and video software products out of the box.** Thus, any additional device programming isn't necessary for many applications.

**The little box is also a great extension for your Ableton Live setup.** There you can control all the continuous parameters like track volumes, rack macros, send amounts, and track panning. A special control surface script for Ableton Live, including all necessary mappings, is enclosed in the package.

**Working with this amazing power box will prove to you that it is a trustworthy, reliable, and invaluable asset to your productions...**

## Features

- **Universal controller** for all kinds of midi controllable hard- and software
- **iPad compatible**
- **Control surface script** for Ableton Live is shipped with the controller
- **USB interface** - class compliant / bus powered / no driver necessary (consumption < 500mW)
- **MIDI in and out ports by 3.5mm minijack sockets type B** with routing and merge functionality
- **16 gridless push encoders** - resolution = 36 pulses per revolution
- **Encoder push buttons** can send separate commands
- **4 x 20 character OLED-display** to show control values (numeric/bar), names and programming data
- **Names** for encoders, groups and setups are editable (4 characters per name)
- **14 bit high resolution encoder mode** for sensitive parameters
- **Programmable value ranges** with min/max values
- **Data feedback** avoid value jumps
- **All encoders fully programmable in the device** by channel, type, number, mode, name etc.
- **Different command types** like control change (CC), pitch bend, NRPN, program change and notes
- **Advanced programming functions** like copy, paste and fill
- **16 independent groups per setup** for 16 encoders (256 commands per setup)
- **Learn function** for fast assignment to incoming MIDI commands
- **16 setups with backup/restore function** contain all controller settings incl. names
- **Very compact design** in a black casing (180x105x70 mm, 350 g)

## System requirements

- **PC or Mac with a free USB port** (1.0 or higher) or any USB hub (connection by inclosed USB cable)
- **iPad** with iOS5 or higher
- **MIDI device** with standard MIDI in port (5pin DIN socket connection by enclosed adapter cable)
- **USB power adapter** (5V min 100mA) if you want to control only midi gear

## Controller mode

Controller mode is the most basic mode of the EC4. This is where the encoders are used to control parameters in your software/hardware through standard MIDI commands like CC, NRPN or notes.

First, choose the encoder setup and/or group by pressing one of the grey SETUP or GROUP keys. The display will show 16 setup or group names in a 4x4 matrix, with the currently selected setup/group name blinking. Selecting is finished by pressing one of the associated encoders. After selection, the display comes back to show the 16 encoder names or values. Leave setup/group selection without a new select by pressing one of the green keys. The last group selection will be stored for each setup separately.

The device offers 16 setups x 16 groups x 16 encoders which is a total of 4096 independent encoder programmings.

The encoders can send different commands which you can program in edit mode.

After turning or pushing an encoder, you can see the value in bar or numerical format on the display for a short while. Select the preferred value display (bar or numerical) by pressing SHIFT + BAR or NUM key. Choose SHIFT + NAME to suppress the automatic value display.

A programmable acceleration gives a better feeling with the encoders so you can go from min to max value easily. Turn slowly or hold the red shift key while you turn the encoders to have a precise control without acceleration.

To see all values instead the names press the green BAR or NUM key. The green NAME key switch back to the encoder names display. Various different display modes for the value displays are individually programmable in the edit mode for each encoder.

Any incoming MIDI feedback data will reflect to the encoders and displays. So the encoders can work without value jumps if your software/hardware is able to send back remote data.

## Ableton Live mode

Setups 16 is preconfigured for using with Ableton Live and the included control surface script 'Faderfox Universal'.

The display shows special group and encoder names. This setup controls the first 16 track of your Ableton set through 12 different groups.

### Encoder groups:



controls VOLUME parameter for 16 tracks

controls PAN parameter for 16 tracks

(left) controls 8 MACRO parameters of the selected rack + VOLUME track 1...8

(right) controls 8 MACRO parameters of the selected rack + VOLUME track 9...16



controls parameter SEND A for 16 tracks

controls parameter SEND B for 16 tracks

controls parameter SEND C for 16 tracks

controls parameter SEND D for 16 tracks



controls parameter SEND A, SEND B, PAN, and VOLUME for tracks 1..4

controls parameter SEND A, SEND B, PAN, and VOLUME for tracks 5..8

controls parameter SEND A, SEND B, PAN, and VOLUME for tracks 9..12

controls parameter SEND A, SEND B, PAN, and VOLUME for tracks 13..16

Groups 13 to 16 are not used in the factory settings and are therefore available for free use.

## Setup mode

Setup mode allows adjustment of general settings. These include different MIDI routings, display brightness and special functions for the encoder buttons. Additionally, you can copy setups and groups, reset setups (factory reset), and send/receive setup data as SysEx (backup/restore).

Start or exit setup mode by holding the blue FUNC key and pressing encoder 4 quickly.

A small arrow on the first line of the right side of the screen lights up to show active setup mode.

Setup data will be stored automatically.

Routing, brightness (disp) and push selections take effect immediately.

To open copy, paste, reset, send or receive menus, simply press the corresponding encoder buttons quickly.

## Routing (turn Encoder 2)

Merging of received MIDI data to controller data.

no	no MIDI routing
UM	USB In to MIDI Out
MM	MIDI In to MIDI Out
MU	MIDI In to USB Out
MUM	MIDI In to USB Out + USB In to MIDI Out
MMU	MIDI In to MIDI Out + MIDI In to USB Out

## Display brightness (turn Encoder 6)

00%....99% display brightness

## Send setup data (press Encoder 10 quickly)

Options menu:



```
Send current setup
Send all setups
Cancel
```

Send current setup (hold encoder 4 while running bar lines shown)

Send all 16 setups (hold encoder 8 while running bar lines shown)

Cancel options menu (press encoder 16 quickly)

The percentage counter in the display shows the progress.

Abort the process is possible by pressing encoder 16 shortly.

Data will be send as SysEx dump to both USB and MIDI ports

## Receive setup data (press Encoder 14 quickly)



```
Work in Progress 0%
Receive Error
```

Shows the progress when receiving data

Wrong SysEx file or other receive problems

Abort is possible by pressing encoder 16 shortly.

After activation of receive mode send setup data from any SysEx dumper software to the device. (e.g. Snoize librarian or MidiOX)

It's strictly recommended to avoid sending SysEx data to USB and MIDI in ports simultaneously!

The percentage counter in the display shows incoming MIDI data.

### Reset setup (press Encoder 4 quickly)

Factory reset of one or all setups. Resets all names too. Resetting all setups takes a few seconds !

Options menu:



```
Reset current setup
Reset all setup
Cancel
```

Reset current setup (hold encoder 4 while running bar lines shown)

Reset all 16 setups (hold encoder 8 while running bar lines shown)

Cancel options menu (press encoder 16 quickly)

### Copy group/setup (press Encoder 8 quickly)

Options menu:



```
Copy current group
Copy current setup
Cancel
```

Copy current group (hold encoder 4 while running bar lines shown)

Copy current setup (hold encoder 8 while running bar lines shown)

Cancel options menu (press encoder 16 quickly)

The last copies will be available in the copy memory permanently.

### Paste group/setup (press Encoder 12 quickly)

Options menu:



```
Paste group
Paste setup
Cancel
```

Paste to current group (hold encoder 4 while running bar lines shown)

paste to current setup (hold encoder 8 while running bar lines shown)

Cancel options menu (press encoder 16 quickly)

### Push functions (turn Encoder 16)

Select special functions for the encoder buttons for all setups and group.



```
Min/Max
Show
Note
CC+8
Set
Grp
```

Toggle the corresponding values between min / max value

Show values (with SHIFT = toggles min/max)

Send note commands with same number/channel as corresponding encoder

Send toggled CC commands with same number but 8 channel offset as corresponding encoder

Select setups

Select groups

For all functions except 'Show' hold SHIFT key and press encoder to show encoder values.



## Edit mode

The edit mode allows the programming of the encoders through various properties.

Start or exit edit mode by holding blue FUNC key and quickly pressing encoder 8 (second row).

The activated edit mode is indicated by a small arrow in the second row on the right display border.

Setup data will be stored automatically after exiting edit mode.

To program an encoder, first choose the group (see controller mode), select the desired control by encoder 2, and then set different properties by the other encoders (see below). Selection of an Encoder works also with SHIFT + pressing the desired encoder.

There are also option menus for copy, fill, and set functions to modify individual properties for all controls in the same group. These functions can make editing much faster.



9 lines on the display mean that the property isn't available

### Control number (turn Encoder 2)

**EC01**...**EC16** select encoder 1 to 16 for editing

### Display scale (turn Encoder 6)

<b>Off</b>	blank display
<b>127</b>	standard display (0 to 127) MIDI 7 bit range
<b>100</b>	decimal display (0 to 100) percent
<b>1000</b>	decimal display (0 to 1000) recommended for 14 bit types
<b>±63</b>	bipolar display (-63...0...+63) MIDI 7 bit range
<b>±50</b>	bipolar decimal display (-50...0...+50) percent
<b>±500</b>	bipolar decimal display (-500...0...+500) recommended for 14 bit types
<b>ON/OFF</b>	binary display (OFF = 0...63, ON = 64...127)

Options menu by pressing encoder 6 quickly:

- Copy display scale to all encoders in same group (hold encoder 4 while running bar lines shown)
- 
- 
- Cancel options menu (press encoder 16 quickly)

### Command type (turn Encoder 10)

<b>CCr1</b>	control change command in relative mode 1 (values 1/127)
<b>CCr2</b>	control change command in relative mode 2 (values 63/65)
<b>CCAb</b>	control change command in 7 bit absolute mode (values 0 to 127) <u>mostly used as standard</u>
<b>Pr9C</b>	program change command (values 0 to 127)
<b>CCAh</b>	two control change commands (MSB/LSB) 14 bit highres mode (values 0 to 16383)
<b>FBnd</b>	pitch bend command (values 0 to 16383) 14 bit
<b>AP/T</b>	aftertouch (channel pressure) command 7 bit (values 0 to 127)
<b>Note</b>	note command (note on / note off)
<b>NRPN</b>	four control change commands (address/data) 14 bit highres mode (values 0 to 16383)

Options menu by pressing encoder 10 quickly:

- Copy command type to all encoders in the same group (hold encoder 4 while running bar lines shown)
- 
- 
- Cancel options menu (press encoder 16 quickly)

## Command mode (turn Encoder 14)

Acc0	no acceleration by faster turning
Acc1	low acceleration by faster turning
Acc2	middle acceleration by faster turning
Acc3	max acceleration by faster turning

Options menu by pressing encoder 14 quickly:

- Copy command mode to all encoders in the same group (hold encoder 4 while running bar lines shown)
- 
- 
- Cancel options menu (press encoder 16 quickly)

## Command channel (turn Encoder 4)

01... 16 choose MIDI channel 1 to 16

Options menu by pressing encoder 4 quickly:

- Copy channel number to all encoders in the same group (hold encoder 4 while running bar lines shown)
- Fill channel numbers in the same group with ascending numbers (hold encoder 8 while running bar lines)
- 
- Cancel options menu (press encoder 16 quickly)

## Command number (turn Encoder 7 / 8)

000... 127 choose controller or note number 0 to 127 for note and CC commands  
000... 031 0 to 31 (MSB) for high CC resolution mode (32 to 63 for LSB follows automatically)  
000... 127/000... 127 0 to 127 (MSB) / 0 to 127 (LSB) for NRPN commands

Options menu by pressing encoder 7 / 8 quickly:

- Copy command number to all encoders in the same group (hold encoder 4 while running bar lines shown)
- Fill command numbers in same group with ascending numbers (hold encoder 8 while running bar lines)
- 
- Cancel options menu (press encoder 16 quickly)

## Lower / upper value (turn Encoder 12 / 16)

000... 127 choose a lower value (0 to 127) for all command types except relative modes and notes  
000... 127 choose an upper value (0 to 127) for all command types except relative modes and notes

Set a higher amount in lower value as the upper value to have an inverted control.

Options menu by pressing encoder 12 / 16 quickly:

- Copy lower / upper values to all encoders in the same group (hold encoder 4 while running bar lines)
- Set lower / upper values in the same group by the current value of the selected encoder (hold down encoder 8 while running bar lines shown)
- 
- Cancel options menu (press encoder 16 quickly)

## Name mode

All names for setups, groups and encoders are editable on the device.

You have to activate the name mode to write characters and numbers to these name fields.

To do so, hold the blue FUNC key and press encoder 12 quickly.

A small arrow in the third line on the right side of the screen lights up to show active name mode.

To select an encoder name field, hold the red SHIFT key and press the desired encoder quickly so the cursor is set to the first character of that name.

Each name field has 4 character space.

In Name mode all 16 encoder push buttons work as character keyboard, similar to a T9 phone keypad.

Characters/functions are printed below encoders.

To write all possible characters of an encoder, simply press several times at short intervals.

The flashing cursor automatically moves on after a new character has been written.

To write setup or group names, first press the gray SETUP or GROUP key.

Press the green NAME key to write encoder names.

If you want to change setup or group while you are in name mode, hold down the SETUP or GROUP key and press an encoder quickly.

All names will be saved automatically after leaving name mode.

You can leave the name mode by holding blue FUNC key and press encoder 12 quickly.

Encoder characters / functions in name mode:

Encoder 1 : ABC	Encoder 2 : DEF	Encoder 3 : GHI	Encoder 4 : JKL
Encoder 5 : MNO	Encoder 6 : PQR	Encoder 7 : STU	Encoder 8 : VWX
Encoder 9 : YZ0	Encoder 10 : 123	Encoder 11 : 456	Encoder 12 : 789
Encoder 13 : _./- (special characters)	Encoder 14 : «« (shift cursor left)	Encoder 15 : »» (shift cursor right)	Encoder 16 : A-a (switch character size)

Switch between large and small characters by encoder 16.

The cursor size corresponds to the character size of the next written characters.

Use encoder 14 and 15 to move the cursor.

Press encoder 13 to write a space or special characters.

Each newly written character overwrites an existing character at the current cursor position.

## Learn mode

Learn mode is a fast way to assign the encoder properties number, channel, and type to the encoders. This is done through the input of incoming MIDI commands.

Control change, program change, NRPN, aftertouch, pitch bend, and note are valid commands for this procedure.

The following steps must be carried out in order:

1. Activate learn mode by hold down blue FUNC key and press encoder 16 quickly  
> small arrow in the lowest row on right display border shows active learn mode
2. Hold red SHIFT key and press the desired encoder quickly to prepare it for the next incoming command  
> the small arrow flashes to indicate that the device is ready to receive
3. Send a valid command to the device or cancel learn mode by step 5  
> the small arrow in display lights up again or is off
4. Repeat step 2 and 3 for each desired encoder
5. Deactivate learn mode by holding down blue FUNC key and pressing encoder 16 quickly  
> small arrow in the lowest row on right display border is off

All learn commands will be saved automatically.

You can also use learn mode in conjunction with edit mode in order to immediately control the incoming commands.

## Factory settings

Commands for setups 1 to 15

### Encoder 1-16:

disp = 127, channel = setup number, mode = Acc3, type = CCAb (absolute 7 bit)

Group:	1/9	2/10	3/11	4/12	5/13	6/14	7/15	8/16
CC:	000-015	016-031	032-047	048-063	064-079	080-095	096-111	112-127

Commands for setup 16 (Ableton live)

### Encoder 1-16:

disp = 127, mode = Acc3, type = CCAb (absolute 7 bit)

Group: 1 (Vol) Encoder 1...8: CC040...047 / Channel 13; Encoder 9...16: CC040...047 / Channel 14  
Group: 2 (Pan) Encoder 1...8: CC032...039 / Channel 13; Encoder 9...16: CC032...039 / Channel 14  
Group: 3 (Rack) Encoder 1...8: CC048...055 / Channel 13; Encoder 9...16: CC040...047 / Channel 13  
Group: 4 (Rack) Encoder 1...8: CC048...055 / Channel 13; Encoder 9...16: CC040...047 / Channel 14  
Group: 5 (SndA) Encoder 1...8: CC000...007 / Channel 13; Encoder 9...16: CC000...007 / Channel 14  
Group: 6 (SndB) Encoder 1...8: CC008...015 / Channel 13; Encoder 9...16: CC008...015 / Channel 14  
Group: 7 (SndC) Encoder 1...8: CC016...023 / Channel 13; Encoder 9...16: CC016...023 / Channel 14  
Group: 8 (SndD) Encoder 1...8: CC024...031 / Channel 13; Encoder 9...16: CC024...031 / Channel 14  
Group: 9 (T1..) Encoder 1...4: CC000...003 / Channel 13; Encoder 5...8: CC008...011 / Channel 13  
Encoder 9...12: CC032...035 / Channel 13; Encoder 13...16: CC040...043 / Channel 13  
Group: 10 (T5..) Encoder 1...4: CC004...007 / Channel 13; Encoder 5...8: CC012...015 / Channel 13  
Encoder 9...12: CC036...039 / Channel 13; Encoder 13...16: CC044...047 / Channel 13  
Group: 11 (T9..) Encoder 1...4: CC000...003 / Channel 14; Encoder 5...8: CC008...011 / Channel 14  
Encoder 9...12: CC032...035 / Channel 14; Encoder 13...16: CC040...043 / Channel 14  
Group: 12 (T13..) Encoder 1...4: CC004...007 / Channel 14; Encoder 5...8: CC012...015 / Channel 14  
Encoder 9...12: CC036...039 / Channel 14; Encoder 13...16: CC044...047 / Channel 14  
Group: 13 ( ) Encoder 1...16: CC016...031 / Channel 1  
Group: 14 ( ) Encoder 1...16: CC032...047 / Channel 1  
Group: 15 ( ) Encoder 1...16: CC048...063 / Channel 1  
Group: 16 ( ) Encoder 1...16: CC064...079 / Channel 1

**General setting** (effected only by factory reset all):

Routing mode: MMMU (MIDI to MIDI, MIDI to USB)

Display brightness: 50%

Push mode: Show







## **User manual EC4 version 2**

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