

# **Faderfox**

## **NEW MODULE**

# **PC12**



# **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
- CD with settings and manuals
- Manual
- Sticker 98 pcs (16 x 9 mm white)

## Introduction

Thank you for choosing a Faderfox controller. The PC12 is the second member of a new line called NEW MODULE. These devices are designed for live use on stage and of course for use in the studio too. All Faderfox controllers are professionally manufactured in small series in Germany, ensuring high quality.

You can combine two or more NEW MODULE devices to create a large system. The connections are on the right side to allow a back to back placing of two or more devices. Connect two NEW MODULES by a special extension port.

Furthermore there are 4 Midi-ports and one USB-port with various routing possibilities.

### **PC12 as successor of the PC44 is a universal controller for all kinds of Midi controllable hard- and software.**

It is packed in a alu case with the same dimensions like the famous ELEKTRON devices so it's a great extension for these devices. But you can use the pot box also with your DAW (recommend as extension for the MX12) like a classical 12-track-mixer.

The device has 72 standard pots with rubber knobs designed in a 12 x 6 matrix, 12 keys and one push-encoder. Various kinds of midi commands like control change, note on/off, pitchbend, aftertouch and program change are possible. You can program every Midi command for every separate control on the device very fast and easily. Of course you can assign the pots and keys to any of these commands by learning incoming Midi commands, which is the same procedure you know from your software / DAW.

The pots work with standard resolution of 7 bit to have full compatibility to any software and hardware instrument, effect and DAW. Use the internal 30 setups to save your individual settings. Backup and restore of all settings by sysex dump is possible too.

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

A special control surface script for Ableton Live 8/9 with all necessary mappings to control 12 tracks simultaneously is enclosed in the package.

**Check out this amazing power box and you will get a reliable mate...**

## Features

- **Universal controller** for all kinds of midi controllable hard- and software
- **USB interface with bus powering** - class compliant / no driver necessary (consumption 110mA)
- **2 MIDI in and out ports** with routing and merge functionality
- **Extension port** to connect a second NEW MODULE device
- **72 pots** with rubber knobs and standard midi resolution of 7bit
- **1 push encoders** with detents (30 pulses) and 14 bit high resolution mode
- **12 buttons with LED** for switchable parameters
- **4-digit-display** to show values and programming data
- **Data feedback** for all controls avoid value jumps
- **Programmable value ranges** with min/max values
- **Fast control assign** by incoming midi commands (assign whole rows of controls by one command)
- **All controls (incl. push buttons) fully programmable in the device** by channel, type, number and mode
- **Different command types** like control change (CC), pitch bend, aftertouch, program change and notes
- **Advanced programming functions** like copy, paste, duplicate, channel sets
- **30 setups with backup/restore function** contain all controller settings and presets
- **Switchable Snap function** for all pots to avoid value jumps
- **Snapshot and Preset functions** to send momentary values or stored presets for all pots/keys (30 presets)
- **Upgradable firmware** by simple Sysex-dump
- **Very compact and solid design** in a black metal casing (size 340x176x75 mm, weight 1.3 kg)
- **Same size as the ELEKTRON devices** (ELEKTRON accessories like dust cover and bags fit perfectly)
- **Cascading of NEW MODULE devices one behind the other** due to the side connections

## System requirements

- **PC or Mac with a free USB port** (1.0 or higher) or any USB hub
- **MIDI device** with standard MIDI in/out port
- **USB power adapter** (5V min 200mA) if you want to control midi gear only

## Connections

The device has four ports each with one in- and one out-port:

- USB
- MIDI 1
- MIDI 2
- EXTENSION

All controller data will be sent to each of the four available out ports simultaneously. Internal connections between the ports are possible by the routing functionality (see chapter setup / routing). In the case of a routing the incoming data will be merged to the controller data of the device. You can route only one in port to each out port.

If you don't connect a computer it's necessary to power the device by any kind of USB power adaptor or by the extension port thru another NEW MODULE device..

## Extension port

The extension port is a 8-pin-interface to connect two NEW MODULE devices.

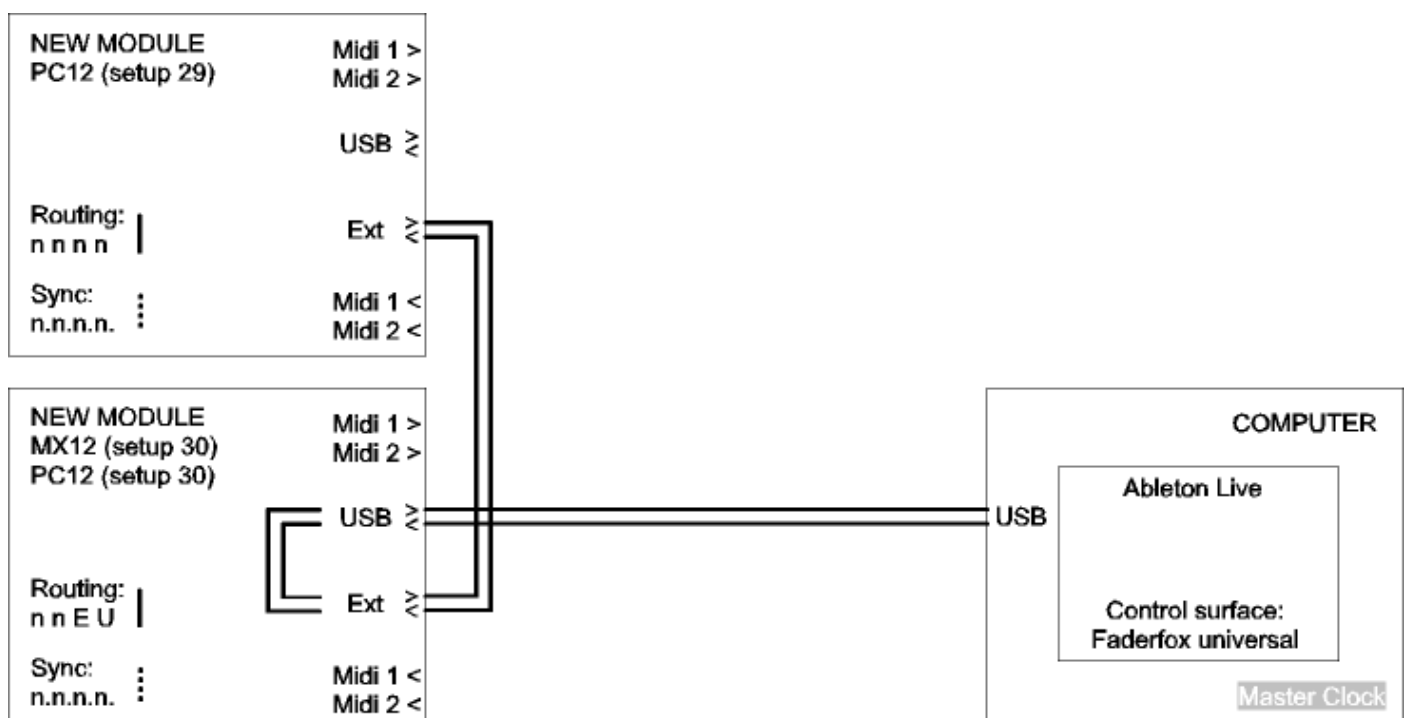
Please use only a crossover ethernet patchcable for this port and don't connect to any other devices !

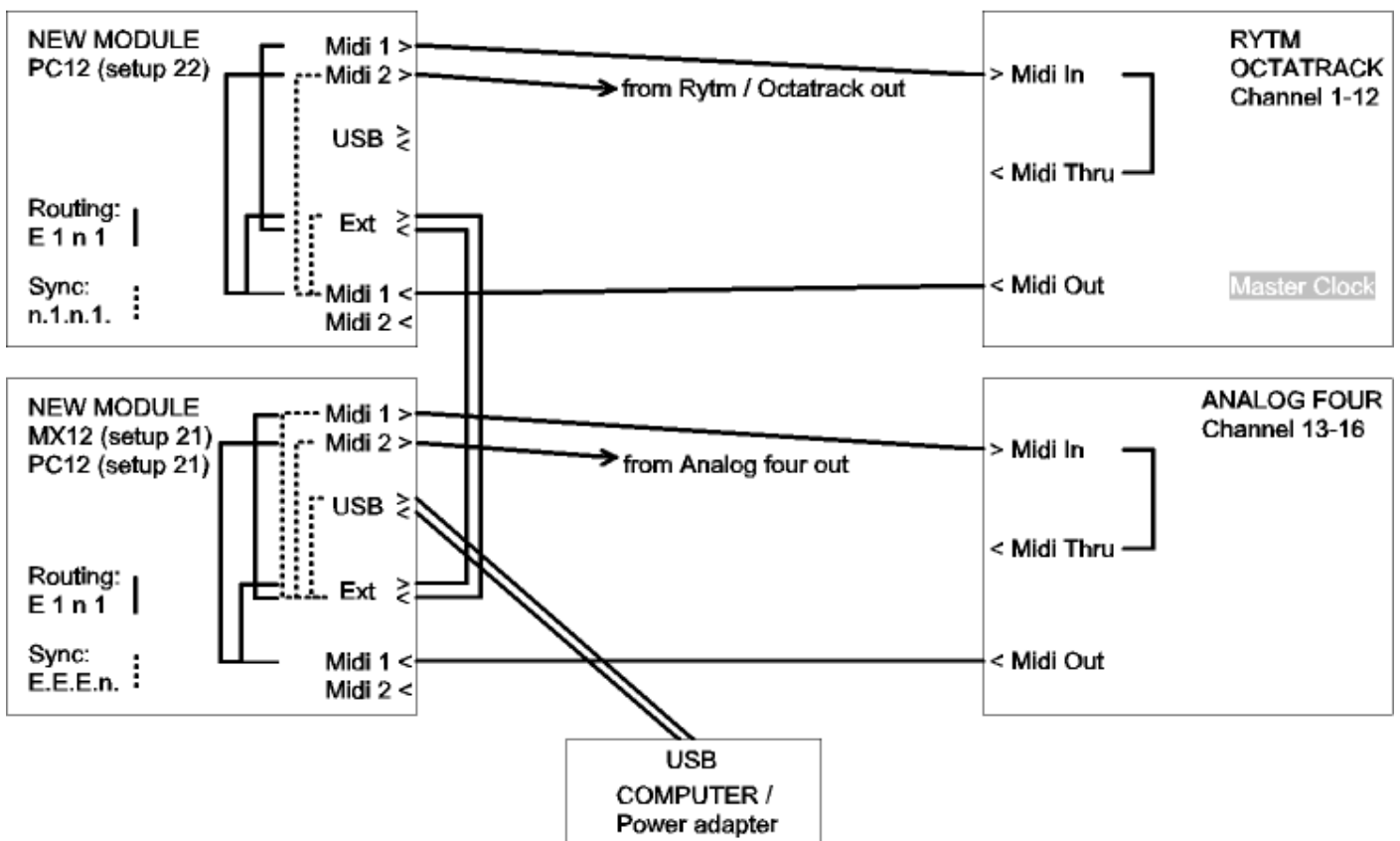
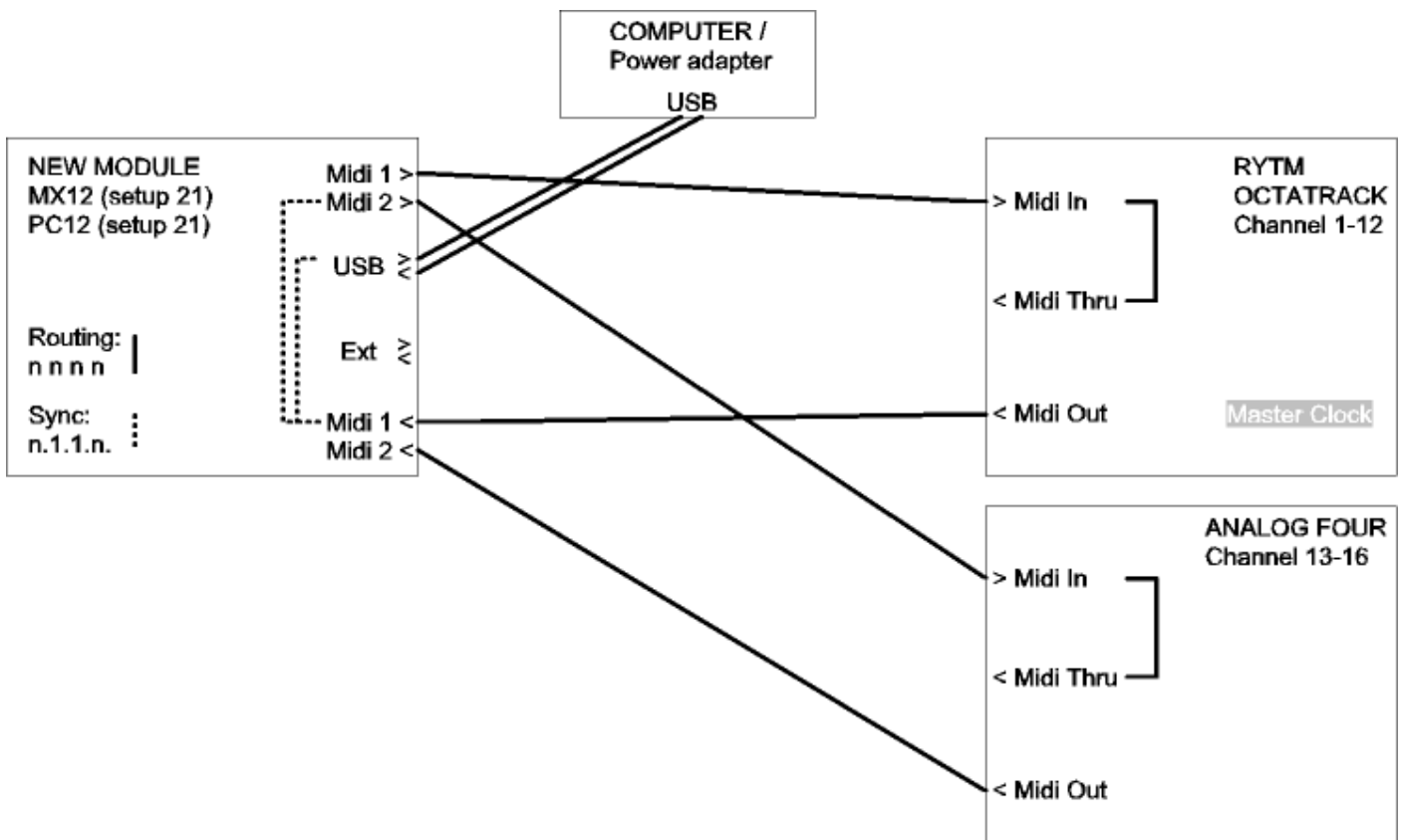
The interface allows to power a second device so you need only one USB connection to a computer or power adaptor for two devices. Further all controller data will be interchanged between the devices.

There are pins for power, one in-port and one out-port. It's also possible to route the extension in- and out-ports to any other port (MIDI, USB).

## How to setup

Below you find three examples of possible setups. First setup comes with one or two NEW MODULES and a computer with ABLETON LIVE. The other two setups contain one or two NEW MODULE devices and one or two ELEKTRON devices (RYTM, OCTATRACK, ANALOG FOUR). Note that you set the ELEKTRONs to different Midi channels so you can control each ELEKTRON by each NEW MODULE. Note the different internal routings for sync- and all other data.





## Controller mode

Controller mode is the basic mode of the PC12. Here the pots, encoder and buttons are used to control any parameter in your soft- or/and hardware by standard midi commands like CC and notes.

The encoder can send different commands via turn and push. You can see the numerical value in the display too. A programmed acceleration gives a better feeling for the encoder so you can go from min to max value easily. Hold down the red shift button while you turn the encoder to have a precise control without acceleration.

The green buttons can be programmed to various modes like the pots and encoder too. So they can work as momentary switch or in toggled mode, sending notes, CC, program change or aftertouch commands.

## Snap function

The pots can work in snap or jump mode. In snap mode you have to catch the last value which avoids any possible value jump after feedback data. The last value and two arrows in the display show the necessary pot movements to catch the value.

Jump mode works like a standard controller so the data will be sent immediately.

Switch between the two modes (snap / jump) by pressing the blue button shortly.

Hold down red shift button while you turn a pot to suppress data sending temporarily. This is also useful to catch the last value exactly.

## Special shift functions

You can use the green buttons while holding down the red shift button to get the following special functions:

- button 1 to 10: select setups in the current tenth group
- button 11: activates/deactivates monitor mode
- button 12: sends a snapshot (current values) of all controls

The monitor function shows incoming and outgoing Midi data. Arrows in the display flash bright when the device transmits or receives controller data. Low flashing indicates midi clock or other midi data. Each display digit represents a Midi port described below the display. The upper arrows show outgoing data and the lower arrows flashes for incoming data. Monitor function is great to check routings etc.

A snapshot includes all current pot/encoder values and the values of all buttons with toggle mode.

## Presets

There is also a new preset functionality which allows to store and send values of all controls. That's great for initialization. You can store a total of 30 presets in the device. The tenth group (buttons 1 to 10) follows the setup number. (for instance the setup 15 is currently selected so you can send/store presets 11 to 20 by the buttons 1 to 10).

Store current values of all controls to a preset by the following steps:

- hold red shift button and press green button 12 to send a snapshot
- hold blue button and press any green button 1 to 10 until all green leds flash shortly

To send a preset hold the blue button and press any green button 1 to 10 shortly.

Presets include only the control values and not the commands itself. That means you can use different presets for each setup or one preset for different setups.

## Edit mode

The edit mode allows the programming of the controls (pots, encoder and buttons). Start and leave edit mode by holding down shift key and press the blue key. The activated edit mode is indicated by blinking yellow Edit-LED. All data will be stored in the currently selected setup automatically by leaving the edit mode.

To edit any control you have to choose the control number first. There are two ways to do so:

1. press button 1 (the left green button) and then select the control by the encoder or
2. holding down the blue button while you move the wanted control

Then you can set different properties by selecting them with button 2 to 8 (see below) and changing with the encoder.

To copy properties separately to all controls of same row (pots or buttons), hold down the button 2, 3, 4, 5, 7 or 8 while running bar lines shown. This makes editing much faster if you want to have same functions on all controls in same row.

Hold down the red shift key and turn the encoder to send Midi commands in edit mode. Pots always send Midi commands in edit mode.

**----** 4 lines in the display means that the property isn't available

### Control number (Button 1)

**PO 1... 12A...F** select pot 1 to 12 in rows A to F for editing

**Enc** select encoder for editing

**Pbt** select encoder push button for editing

**BO 1...08** select green button 1 to 8 for editing

You can see the control and row numbers on the faceplate.

### Display scale (Button 2)

Pot / encoder scales:

**OFF** no display control

**Std** standard display-control (0 to 127) by the device and by external command

**bPoL** bipolar display-control (-63 to 63) by the device and by external command  
(for high resolution mode running bar lines per step on right display)

Button scales:

**OFF** no LED control

**Std** standard LED control by the device and by external command

**EHL** LED control only by external commands

External control by feedback data with same commands as corresponding buttons.



### Command type (Button 3)

Pot types:

<code>notE</code>	note command (note on for right side, note off for left side)
<code>CC</code>	control change command in 7 bit absolute mode (values 0 to 127) <u>most used standard-mode</u>
<code>PrCC</code>	program change command (values 0 to 127)
<code>Pbnd</code>	pitch bend command 14 bit (values 0 to 16383) Resolution 7 bit !
<code>AFtt</code>	aftertouch (channel pressure) command 7 bit (values 0 to 127)

Encoder types:

<code>CCr1</code>	control change command in relative mode 1 (values 1/127)
<code>CCr2</code>	control change command in relative mode 2 (values 63/65)
<code>CCAb</code>	control change command in 7 bit absolute mode (values 0 to 127) <u>mostly used as standard</u>
<code>PrCC</code>	program change command (values 0 to 127)
<code>CCAh</code>	two control change commands (MSB/LSB) in 14 bit highres mode (values 0 to 16383)
<code>Pbnd</code>	pitch bend command 14 bit (values 0 to 16383)
<code>AFtt</code>	aftertouch (channel pressure) command 7 bit (values 0 to 127)
<code>notE</code>	note command (note on for turning clockwise, note off for turning counter clockwise)

Button types:

<code>notE</code>	note command
<code>CC</code>	control change command
<code>PrCC</code>	program change command
<code>AFtt</code>	aftertouch (channel pressure) command

(for all button types: upper value = press/on, lower value = release/off)

### Command mode (Button 4)

Pot modes:

<code>JUpP</code>	jump mode, command will be sent immediately by moving the control
<code>SnAP</code>	snap mode, sends command not before catching the last value by moving the control

Encoder modes:

<code>Acc0</code>	no acceleration by faster turning
<code>Acc1</code>	low acceleration by faster turning
<code>Acc2</code>	middle acceleration by faster turning
<code>Acc3</code>	max acceleration by faster turning

Button modes:

<code>btN</code>	send momentary command (upper value = press, lower value = release)
<code>toGL</code>	send toggle command (upper value = on, lower value = off)

### Command channel (Button 5)

**Ch01... 16** choose midi channel 1 to 16

### Command number (Button 6)

**n000... 127** choose controller or note number 0 to 127 for note and CC commands  
0 to 31 (MSB) for high resolution mode (32 to 63 for LSB follows automatically)

### Lower / upper value (Button 7 / 8)

**L000... 127** choose lower value (0 to 127) for all command types except relative modes

**U000... 127** choose upper value (0 to 127) for all command types except relative modes

Set same lower and upper value for buttons with program change type to choose only one program change number by the button. Set a higher amount in lower value as upper value to have an inverted control.

lower value = note press velocity

upper value = note release velocity

## Setup mode

The setup mode allows selection of setups and routings. Further you can copy and fill setups and parts, reset setups (factory reset) and send/receive setup data as sysex (backup/restore).

Start and leave setup mode by holding down red shift key and press blue key. The activated setup mode is indicated by blinking yellow setup-LED.

To start any special, copy, paste, reset, send or receive function please hold down the button 3 to 8 while running bar lines shown in the display.

Setup and routing selection (buttons 1 and 2) take effect at once.

Hold down the red shift key and turn the encoder to send Midi commands in setup mode. Pots always send Midi commands in setup mode.

### Setup (Button 1)

**5E0 1....30** select setup 1 to 30

### Routing (Button 2)

Push encoder to select the Midi-out-port (blinking display digit) and turn encoder to rout any of the 4 possible Midi-in-ports to that Midi-Out-port. Each Out-port can be routed to one In-Port separately. Each display digit represents one Midi-out-port described below the display.

Press the blue key to switch between two independent routing ways:

1. display points are off = routing of all midi data except system realtime commands
2. display points are lit = routing only of system realtime commands (midi clock, start, stop, continue)

Routing means that the incoming data will be merged to the controller data.

All routings are global (same for all setups) and will be stored automatically by leaving setup mode.

<b>n</b>	no routing to that out-port
<b>1</b>	routing to Midi 1 in-port
<b>2</b>	routing to Midi 2 in-port
<b>U</b>	routing to USB in-port
<b>E</b>	routing to Extension in-port

### Special (Button 3)

<b>dUc 1</b>	duplicate all pots/buttons of column 1 (left column) to columns 2 to 12 (12 track mode)
<b>dUc 2</b>	duplicate all pots/buttons of columns 1/2 to 3/4, 5/6, 7/8, 9/10 and 11/12 (6 track mode)
<b>dUc 3</b>	duplicate all pots/buttons of columns 1/2/3 to 4/5/6, 7/8/9 and 10/11/12 (4 track mode)
<b>dUc 4</b>	duplicate all pots/buttons of columns 1/2/3/4 to 5/6/7/8 and 9/10/11/12 (3 track mode)
<b>dUr 1</b>	duplicate all pots of row A to rows B to F (6 track mode)
<b>dUr 2</b>	duplicate all pots of rows A/B to rows C/D and E/F (3 track mode)
<b>dUr 3</b>	duplicate all pots of rows A/B/C to rows D/E/F (2 track mode)

- [hc 1]** set channel numbers of all pots/buttons in ascending order to columns (12 track mode)  
(column 1= channel#, column 2= channel# + 1, column 3= channel# + 2,...)
- [hc2]** set channel numbers of all pots/buttons in ascending order to columns (6 track mode)  
(columns 1/2= channel#, columns 3/4= channel# + 1, columns 5/6= channel# + 2,...)
- [hc3]** set channel numbers of all pots/buttons in ascending order to columns (4 track mode)  
(columns 1/2/3=channel#, columns 4/5/6=channel# + 1, columns 7/8/9=channel# + 2,...)
- [hc4]** set channel numbers of all pots/buttons in ascending order to columns (3 track mode)  
(columns 1/2/3/4= channel#, columns 5/6/7/8= channel# + 1,...)
- [hr 1]** set channel numbers of all pots in ascending order to rows (6 track mode)  
(row A= channel#, row B= channel# + 1, row C= channel# + 2,...)
- [hr2]** set channel numbers of all pots in ascending order to rows (3 track mode)  
(rows A/B= channel#, rows C/D= channel# + 1, rows E/F= channel# + 2)
- [hr3]** set channel numbers of all pots in ascending order to rows (2 track mode)  
(rows A/B/C= channel#, rows D/E/F= channel# + 1)

#### Copy (Button 4)

**[COPY]** Copies the current selected setup  
The last copied setup will be available in the copy-memory permanently so you can paste it later again.

#### Paste (Button 5)

**[PASTE]** paste to the current selected setup

#### Reset (Button 6)

**[rESC]** Reset current selected setup to factory settings (presets are not affected)  
**[rESA]** Reset all setups to factory settings (clear all presets too)

#### Send (Button 7)

**[Sndc]** Send current selected setup as sysex data via both USB and Midi ports  
**[SndA]** Send all setups as sysex data via both USB and Midi ports  
(Counting in the display shows the progress; abort by pressing the red shift key)

#### Receive (Button 8)

**[rEc]**  
**[rc00]** receive mode is active and device is ready to receive sysex data  
**[rc0 1...99]** counting shows the progress while receiving valid sysex data  
**[Err]** shows a receive error. Try again by pressing shift and reactivating receive mode.  
Activate receive mode by holding down button 8 while running bar lines shown in the display.  
When the display shows 'rc00', start sending setup data from any sysex dumper software:  
Bome 'Send SX' for Windows (<http://www.bome.com/products/sendsx>) or  
Snoize 'SysEx Librarian' for Mac (<http://www.snoize.com/SysExLibrarian/>)  
Abort the process by pressing red shift key. The most right display point shows incoming Midi data.  
It's strictly recommend to avoid sending sysex data to USB and Midi in ports simultaneously!

## Learn mode

The learn mode allows assignments of controls by incoming Midi commands. That's quite convenient, because you don't have to program any control property (Midi channel, note, CC) separately. To activate / deactivate hold down the red shift button and press the encoder. The red learn LED above the encoder shows the active learn mode.

Select a control to learn by holding down the encoder and turn left / press the desired control. The red learn LED blinks to show that the device is ready to receive a command for assignment. The display shows the control name:

**PO 1... 12A...F** select pot 1 to 12 in rows A to F

**Enc** select encoder

**Pbt** select encoder push button

**BO 1... 08** select green button 1 to 8

You can see the control and row numbers on the faceplate.

There are also some expanded row learn functions on different controls. You can assign several controls in one row by only one incoming command. Hold down the encoder and turn any of the pots 1,8,9 or 12 to the right side (counterwise) or press green button 1,8,9 or 12 twice that the display shows followings:

**rA...FO 1** select all pots of row A to F (learning pot 1 command with ascending channel numbers)

**rA...FO 8** select pots 1-8 of row A to F (learning pot 8 command with descending channel numbers)

**rA...FO 9** select pots 9-12 of row A to F (learning pot 9 command with ascending channel numbers)

**rA...F 12** select all pots of row A to F (learning pot 12 command with descending command numbers) (e.g. assign pot 12 to CC032 > pot 1 – 12 to CC021 – CC032, same channel)

**rG 1** select all green buttons (learning button 1 command with ascending channel numbers)

**rG 08** select green button 1-8 (learning button 8 command with descending channel numbers)

**rG 09** select green button 9-12 (learning button 1 command with ascending channel numbers)

**rG 12** select all green buttons (learning button 12 command)

(CC,program change, aftertouch commands set values from 1 to 12 for buttons 1 to 12, note commands set note number 0 to 11 for buttons 1 to 12)

The expanded learn mode is very useful for fast assignments of a single parameter on many tracks by setting the same command but different channels to several controls in the same row automatically. The functions of control 12 is a bit different, because it comes with a setting of descending command numbers or values instead channels.

To abort the learn process press the red shift button and the red LED will lit again.

The learn mode is available in controller and edit modes. The device accepts commands on all Midi ports to learn from.

## Factory settings

### settings in setups 01 to 20 and 23 to 29:

controls have unique CC numbers but same midi channel.

- pots
  - row A: CC001...CC012
  - row B: CC013...CC024
  - row C: CC025...CC036.
  - row D: CC037...CC048
  - row E: CC049...CC060
  - row F: CC061...CC072
  
- buttons
  - row G (green): CC073...CC084 (toggle mode)
  
- encoder
  - encoder: CC085
  - encoder push button: CC086 (momentary mode)
  
- Midi channels for all controls:
  - setup 01, 17 : channel 01
  - setup 02, 18 : channel 02
  - setup 03, 19 : channel 03
  - setup 04, 20 : channel 04
  - setup 05 : channel 05
  - setup 06 : channel 06
  - setup 07 : channel 07
  - setup 08 : channel 08
  - setup 09 : channel 09
  - setup 10, 23 : channel 10
  - setup 11, 24 : channel 11
  - setup 12, 25 : channel 12
  - setup 13, 26 : channel 13
  - setup 14, 27 : channel 14
  - setup 15, 28 : channel 15
  - setup 16, 29 : channel 16

### settings in setups 21 and [22] (ELEKTRON RYTM setups):

controls have same CC numbers in same row but different midi channels for each column.

assigned to various parameters of RYTM tracks 1 to 12.

setup 22 as RYTM extension for MX12.

- pots
  - row A: CC074 cutoff [CC074 cutoff]
  - row B: CC081 overdrive [CC075 resonance]
  - row C: CC082 delay [CC081 overdrive]
  - row D: CC083 reverb [CC080 decay]
  - row E: CC010 pan [CC031 sample volume]
  - row F: CC007 volume [CC016 synth volume]

- buttons
  - row G (green): CC094 (toggle mode) track mute [CC092 scene / all buttons channel 01]
- encoder
  - encoder: CC025 reverb decay / channel 13 [CC081 makeup gain / channel 13]
  - encoder push button: note123 (momentary mode) / channel 13
- Midi channels for pots and green buttons:
  - columns 1 : channel 01 track 1
  - columns 2 : channel 02 track 2
  - .
  - .
  - .
  - columns 12 : channel 12 track 12

**settings in setup 30 (ABLETON LIVE):**

assigned to various parameters of LIVE tracks 1 to 12.

- pots
  - pot 1 to 8 row A: CC000...CC007 send 1
  - pot 1 to 8 row B: CC008...CC015 send 2
  - pot 1 to 8 row C: CC016...CC023 send 3
  - pot 1 to 8 row D: CC024...CC031 send 4
  - pot 1 to 8 row E: CC032...CC039 pan
  - pot 1 to 8 row F: CC040...CC047 volume
  - pot 9 to 12 row A: CC000...CC004 send 1
  - pot 9 to 12 row B: CC008...CC011 send 2
  - pot 9 to 12 row C: CC016...CC019 send 3
  - pot 9 to 12 row D: CC024...CC027 send 4
  - pot 9 to 12 row E: CC032...CC035 pan
  - pot 9 to 12 row F: CC040...CC043 volume
- buttons
  - button 1 to 8 row G (green): note104...CC111 (momentary mode) track mute
  - button 9 to 12 row G (green): note104...CC107 (momentary mode) track mute
- encoder
  - encoder: CC059 (relative 1 mode) scene select
  - encoder push button: note123 (momentary mode) scene launch
- Midi channels for pots and green buttons:
  - columns 1 to 8 : channel 13
  - columns 9 to 12: channel 14

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

Setup : 01  
 Routing modes : n n n n (no routings)  
                   n.n.n.n.(no sync routings)  
 Factory reset all clears all 30 presets too !



## **User manual PC12 version 1**

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