

# OWNER'S MANUAL

**LACHNIT** MK 23 Studio 88



Thank you very much for choosing a **FLKeys** product.

180 years of Viennese piano building experience, as well as 30 years of research and knowledge in piano electronics are behind each LACHNIT FLK MIDI keyboard.

Our customers are mainly professional musicians and artists but our products are also suitable for students, especially as they give you the freedom to practice anytime anywhere.

Many thoughts were spent to make operating the keyboard as easy as possible. If you are familiar with MIDI basics, you will be able to play your MK23 instantly without having to look into the manual for first steps instructions.

Nevertheless, we advise you to read your owner's manual thoroughly as it will give you valuable information to get the best results out of your LACHNIT MK23 keyboard.

Friedrich Lachnit

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## FIRST STEPS

Read enclosed safety instructions carefully. SPECIAL MESSAGE SECTION Page 29

Place the instrument in a stable position. The surface has to be as even as possible to ensure a stable position for all legs to touch the ground. We recommend using a high quality keyboard stand. Find a position where the rubber feet or the bottom of the keyboard rest in a secure stable position. Incorrect positioning can result in damage of your keyboard as well as production of unwanted secondary noises.

Malfunctions or damages by arbitrarily, improperly removed or exchanged rubber feet (elastic damper on the case ground) are not covered by the FLKeys warranty. Please let us know. We will assist you.

Tilted positions are possible but reduce the weightage of the keys and change the mechanical touch when playing.

Make the Midi connection

If required plug in pedals.

The MK23 is pre-programmed to work with the optional FLK pedal, but works just fine with most conventional damper pedals. Pedal contact type (Open / Close) is automatically detected when your keyboard is turned on.

(For more detailed information see page 14: pedal and page 21: technical details)

Connect the **FLK** power supply

We highly recommend using only the original **FLK** power supply. Damages caused by using a power supply from another brand are not included in your warranty.

The Auto Power On feature turns on your MK23 automatically if connected to an active power socket.

Key 1 lights up and the display shows **P I**

Your MK23 receives data on all channels (Omni Mode ON).

**Panic Reset** flashes when keys are pressed or controllers are used (for further details go to page 13: MIDI activity)

To turn off your keyboard hold the **ON** button down till the display changes from **P I** to **BYE**.

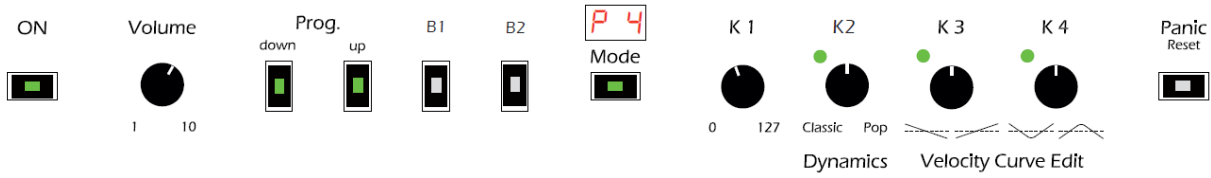
The delay in switching off prevents accidental turn off while in use.

Turn on with the on Button is possible immediately as usual. Auto-Power-On is ready again after about 10 seconds.

For detailed factory settings refer to technical details on page 27

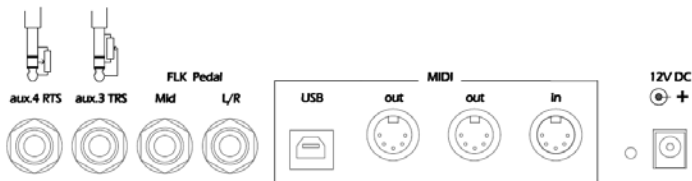
# AT A GLANCE

## CONTROL PANEL



<p><b>ON</b> on/off key with turn off delay to prevent accidental switch off while in use</p> <p><b>Volume</b> volume control knob</p> <p><b>Buttons Prog down up</b> program selection (MIDI Program Change)</p> <p><b>B1 B2 Buttons</b> to be used as MIDI Controllers (Free CC)</p> <p><b>Display P 4</b></p> <p><b>Mode</b> Multi function key. Switch from MIDI CC to internal FLK functions.</p>	<p><b>K1</b> MIDI Controller (Free CC)</p> <p><b>Dynamics K2</b> Knob with center detent to regulate key dynamics. Also MIDI Controller (Free CC)</p> <p><b>Velocity Curve Edit</b> 2 knobs with center detent to adjust midi velocity. Also MIDI Controller (Free CC)</p> <p><b>Panic Reset</b> MIDI reset / MIDI activity</p>
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## SOCKETS AT THE BACK OF THE KEYBOARD



Expression Pedals    MIDI    Socket for 12 V FLK power supply

Jacks Mid and L/R are predefined for FLK Pedals

More detailed technical information on page technical details 21.

## PIANO KEY FUNCTIONS



The labels above the keys show the secondary function of each individual key. This corresponds exactly to the order of the keyboard. It is modelled after the white and the black keys. Many helpful and interesting settings are possible.



For further details see secondary key functions page 10

## OPERATION



### DYNAMICS / Velocity curve edit

The Dynamics knob changes the velocities of the MK23 keys to suit your keystroke. It customizes the output to meet the dynamic needs of the attached sound module.

Knob in neutral position: LED is green, display shows 0

Turn left up to -64 or right up to 63: the LED changes to red.

Knob position is different to current settings: LED doesn't light up, display shows ---.

**Classic:** heavy keystroke – less volume -64 (MIDI 127 similar to grand piano).

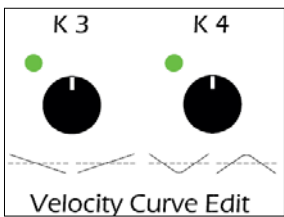
Neutral average keystroke 0

**Pop** light keystroke – more volume 63 (MIDI 127 easy achievable).

Each knob position uses the full midi velocity resolution. Even the slightest nuances in your dynamic play will be allocated correspondent midi values from 1 to 127 (or 1 - 4098 with MIDI Hi res).

Can be used as **K2** MIDI Controller (Free CC) For detailed technical information go to page 21

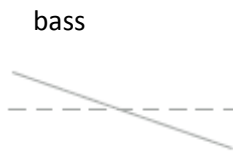
### VELOCITY CURVE EDIT



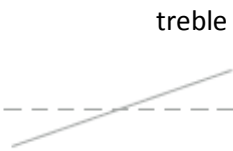
Can be used as **K3 K4** MIDI Controller (Free CC) For detailed technical information go to page 21

These two knobs adjust the volume on individual regions of the keyboard. They can be used whilst playing and enable you to optimise the output to the requirements of your sound module.

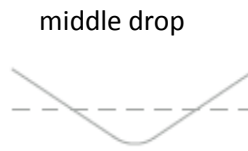
neutral: 0 max left -64 max right 63



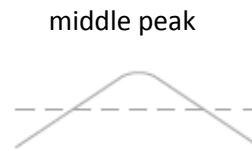
Volume increases on lower keys, it decreases on higher ones.



Volume increases on higher keys, it decreases on lower ones.



Volume decreases on middle keys (c1), it increases on higher and lower ones.



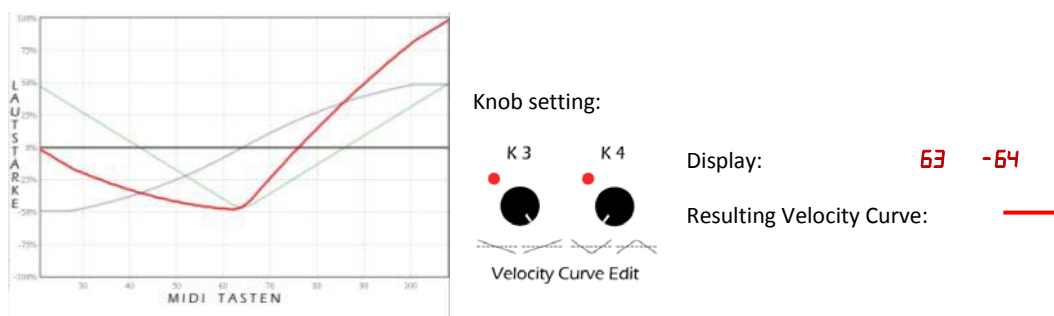
Volume increases on middle keys (c1), it decreases on higher and lower ones.

neutral: no change, display: 0  
LED is green

neutral: no change, display: 0  
LED is green

The knobs can be used together for generating more complex velocity curves.

Example: both knobs set to maximum:



Your personal dynamic settings can be assigned by using „Setup Store“ to the current program number. (For further details see secondary key functions page 10)

When recalling a previously stored dynamic setting all stored parameters (dynamic and both velocity curves) are automatically set. Therefore the current position of the knobs might not be the one used by the setting. In this case the LED of the knob in question doesn't light up.

If you twist a knob the recalled settings are changed and the LEDs as well as the display behave again as mentioned above. The stored settings stay in the memory till you use „Setup Store“ and the same program number again.

*If you want to work with previously stored dynamic settings, push **Mode** while turning the knob in question till the LEDs light up. Stored data is displayed and the knobs are in tune with your settings.*

**Note:**

*If you want to use your dynamic settings without changing the current program on the sound module, it is possible to disable the program change. (See secondary key functions page 10 und 19) The display changes to **d--** with the profile number.*



#### BUTTONS PROG DOWN UP PROGRAM SELECTION

Press longer > goes into fast mode.

Many sound libraries react directly to Program Change Midi commands.

You can browse sound libraries or create a folder with your favourite sounds and then access those sounds with the FLK Prog. Buttons.

Please consult the instruction manual of the sound library provider for details.

#### BUTTONS **B1 B2**

Factory preset: Push button (Can be configured as detent switch)

CC number undefined (22,23) Any user defined control number can be assigned by using the secondary key functions.

#### KNOBS **K1 K2 K3 K4**

Factory preset:

K1 CC Nr 91 (Reverb). User: FLK Aftertouch sensitivity can be changed with CC 0 more at Aftertouch (optional)

K2 K3 K4 Dynamic velocity knobs.

Factory preset:

CC number undefined (85,86,87)

Any user defined control number can be assigned by using the secondary key functions.

Internal FLK features will remain available.

#### KEY: **PANIC RESET**

The LED flashes green twice to confirm input, the display shows: **Pnc**

Sends to all connected MIDI devices:

All Notes off

Controller Reset

Resends all current settings

#### MIDI ACTIVITY:

**Panic Reset** key LED flashes red when data is received or sent using the MIDI interface.

Factory settings MIDI activity: transmit and receive on; adjustable with SKF Mode

## SECONDARY PIANO KEY FUNCTIONS (SKF MODE)

Please read following instructions carefully before using the secondary key functions!

**The keys don't generate sound if you switch to SKF Mode. If you press a key you will change the settings. Therefore make sure you exit SKF Mode before playing.**

But don't worry, to change settings you always have to press more than one key at a time or hold down keys for several seconds. An acoustic signal as well as the display informs you of impending changes to the settings. If you should accidentally get in this situation, don't panic. Read current settings on the display and double check them. If everything goes wrong you can always reset to factory settings or your personal setup. (Setup Store / Setup Recall)

### ACTIVATE SKF MODE (SECONDARY PIANO KEY FUNCTIONS)

To activate SKF Mode press **Mode** and **ON** simultaneously. The LEDs on buttons **1 2 3** and **4** turn red and **Mode** starts flashing red. Display shows **iOd**

SKF Mode is now active.

Each valid second key function input is confirmed with a brief acoustic signal.

Features are directly accessed through the **option keys** (black keys) and adjusted with the **setup keys** (white keys).

Basic guideline:

Press and hold the option key.

Use the Controller to select it.

Adjust with setup keys.

Release the option key > settings are now adjusted.

Releasing the option key saves the settings. Two beeps in rising intonation signal successful saving. If the input was incomplete or incorrect, two beeps in falling intonation signal that the new settings were not saved. The previous settings remain.

Exception: Setup Store

See also Examples in the Appendix page 20

As a check a' (A4) can always be played.

#### PLEASE NOTE:

The German key notation (the English notation is in brackets) serves to make option and setup keys easier to locate.

Multiple digit numbers can be entered with the “Numeric Key 0-9”. For example: Press Key 9 then Key 1 for Controller 91 (Reverb).

TIP: The Keys 10-16 can also be used, i.e. Key 12 and Key 7 for 127.

We recommend saving your latest settings in Setup Store (see below) before closing the SKF Mode. This makes it possible to return to the last setting if a key is pressed unintentionally the next time Piano Key Setup Mode is used.

To quit SKF Mode press the **Mode** button. It then changes back to green.

#### RESET TO FACTORY SETTINGS

Change to SKF Mode (**Mode** flashes red) and hold the key **Panic Reset** for three seconds, till it flashes red four times and you hear an acoustic signal.

Display toggles till you hear the signal: **9En rES** Confirmation when finished: **don**

All configurations are changed to factory settings (see page 27) including Setup Store, dynamics and velocity curve settings.

## SETUP STORE

Stores all user defined keyboard configurations except dynamics velocity curve edit and pedal settings.

Storing new settings overrides previous stored settings.

SETUP STORE can be recalled whilst playing by pushing **Mode** and **Panic Reset** for one second.

Push **Mode** and **ON**. Display shows **Mod**

Push and hold the black key labelled on housing "Setup Store" „B (A#0) for two seconds.

Display: **55t** Confirmation: **don**

Exit SKF Mode with the button **Mode**.

## SETUP RECALL

Reset to last stored user defined setting

You can use SETUP RECALL whilst playing. You don't have to change to SKF Mode.

To activate SETUP RECALL push the buttons **Mode** and **Panic Reset** at the same time for one second till **Panic Reset** LED flashes red three times und you hear an acoustic signal.

Display: **5rc** Confirmation: **don**

The last saved settings is recalled.

## MIDI HI RES CC#88 (OPTIONAL) ,Dis (D#1)

Push **Mode** and **ON**. Display shows **Mod**

Push and hold the unlabeled black key ,Dis (D#-1). Change settings by using the white keys:

on h (B3) **Hi** MIDI High Resolution cc#88 16256 dynamic resolution.

off (c1) **Lo** MIDI Standard 127

Exit SKF Mode with the button **Mode**.

## KEY TRANSPOSE

Push **Mode** and **ON**. Display shows **Mod**

Push and hold the black key labelled on housing with "Key Transp." (...)

Push briefly one of the white keys -6 to +5.

,Fis (F#1) -6 (lower)

C (C2) 0 regular

F (F2) +5 (higher)

a' (a4) can be used for sound check.

Exit SKF Mode with the button **Mode**.

## MIDI SETTINGS MIDI ACTIVITY

Push **Mode** and **ON**. Display shows **Mod**

Push and hold the black key labelled on housing

### OMNI MODE B (A#2)

h (B3) on c'(C4) off

### PROGRAM CHANGE CIS (C#3)

h (B3) on c'(C4) off

### CONTROL CHANGE DIS (D#3)

h (B3) on c'(C4) off

## MIDI ACTIVITY

Change settings with the white keys.

g (G3) > Receive	Shows received data
a (A3) > Send	Shows sent data
h (B3) > On: receive/send	Received AND sent data / acoustic signal on
c'(C4) > Off	Off / acoustic signal beep off

Exit SKF Mode with the button **Mode**.

*Note:*

*MIDI Act. off enables you to turn off the **acoustic signal beep** that confirms input.*

## PIANO MODE

Push **Mode** and **ON**. Display shows **Mod**

Push and hold the black key labelled on housing "Piano Mode" (...). Change settings by using the white keys labelled on housing:

h (B3) on very slow key speed: no sound is produced

c' (C4) off

a' (A4) can be used for sound check

Exit SKF Mode with the button **Mode**.

*Hint:*

To use the Sympathetic Resonance effect of some sound sources, it is useful to turn off the Piano Mode. It is then usually easier to depress keys with velocity 1 to "release the damper".

## WATERFALL

Push **Mode** and **ON**. Display shows **īod**

Push and hold the black key labelled on housing "Waterfall" (...). Change settings by using the white keys:

on h (B3)            Every keystroke generates the same velocity.  
Factory setting: MIDI 100. Change value with white keys 0-9.

off (c1)

a' (A4) can be used for sound check

Exit SKF Mode with the button **Mode**.

## BANK SELECT:

Push **Mode** and **ON**. Display shows **īod**

Push and hold the black key labelled on housing "Bank Sel"

Enter with numeric piano keys f'(F5) – a'(A6)

## AUX

### Aux 3

Stereo Jack for Expression pedals TRS.

Push and hold the black key labelled on housing "Aux 3"

Display shows current status, shortly after the CC number.

Change settings by using the setup keys labelled on housing. See table page 18 19

CC default 011

Exit SKF Mode with the button **Mode**.

### Aux 4

Stereo Jack for Expression pedals RTS.

Push and hold the black key labelled on housing "Aux 4"

Display shows current status, shortly after the CC number.

Change settings by using the setup keys labelled on housing. See table page 18 19

CC default 011

Exit SKF Mode with the button **Mode**.

## PEDALS

The MK23 is pre-programmed to work with optional FLK pedals, but works just fine with the most conventional pedals. Pedal contact type (Open / Close) is automatically detected when your keyboard is turned on. It can be changed with "Pedal Invers" fis"(F#7) (see page 17).

For more details see: technical details page 21

### PEDAL LEFT/RIGHT

Stereo jack L/R for FLK pedals and other.

Push **Mode** and **ON**. Display shows **īod**

Push and hold the correspondent black key labelled on housing.

Display shows current status, shortly after the CC number.

Change settings by using the option keys. See table

Left CC default 067

Right CC default 064

Exit SKF Mode with the button **Mode**.

### PEDAL MID

Stereo jack Mid for FLK pedals and other.

Push **Mode** and **ON**. Display shows **īod**

Push and hold the correspondent black key labelled on housing.

Display shows current status, shortly after the CC number.

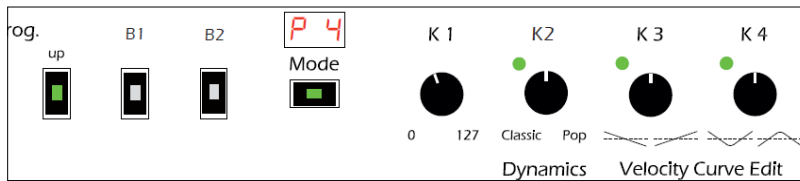
Change settings by using the option keys. See table

CC default 066

Exit SKF Mode with the button **Mode**.

## KNOBBS BUTTONS CONFIGURABLE MIDI CONTROLLERS

### B1 B2 K1-K4



### CONTR. SET

Push **Mode** and **ON**. Display shows **Mod**

Push and hold the correspondent black key labelled on housing. Select button by pressing, knob by slightly moving. Check display. Keep holding key Contr. set while changing settings by using the option- and numeric keys.

Then let off key Contr. set. An acoustic signal (ascending melody) confirms your input. In case of an invalid input you will hear a descending melody and your input is rejected.

Exit SKF Mode with the button **Mode**.

#### Hint:

*Though knobs K2 K3 K4 are activated as MIDI Controllers you can use their internal FLK features by pressing **mode** during using. To use the FLK Features permanently set MIDI Controllers K2 K3 K4 to off. The current CC settings will remain.*

### MOD WHEEL

Push **Mode** and **ON**. Display shows **Mod**

Press and hold the black key labelled on housing "Mod. Wheel" (f#3) to define the used controller number. Change settings by using the white keys labelled on housing. See table page 18 19 .

Default: Modulation (controller number 1)

Exit SKF Mode with the button **Mode**.

### FLK AFTERTOUCH (OPTIONAL)

Push **Mode** and **ON**. Display shows **Mod**

Press and hold the black key labelled on housing "Aftertouch" (g#3)

Change the settings with the white keys labelled on housing. (or see Tables 18 19)

Channel Aftertouch CC 0 Default

Pseudo Poly Aftertouch CC 130 The aftertouch effect is only audible on the last key pressed. Just this key sends poly AT. The sound software must be able to receive poly AT.

Hint: Assign the controller number 0 to the knob K1 to have direct access to the pressure sensitivity and adjust it musically while playing.

In this mode, the display will show **AFt** when changing the controller.

Exit SKF Mode with the button **Mode**.



## PPEDAL (OPTIONAL) B<sup>'''</sup> (A#6)

Push **Mode** and **ON**. Display shows **īod**

Push and hold the black piano key of a pedal to your choice (Pedal Left for ex.)

With the non labelled black key b<sup>'''</sup> (A#6) you can assign the PPedal effect. Display: **P--**

Exit SKF Mode with the button **Mode**.

The Pianissimo Pedal effect enables you to play with more dynamic means of expression. Holding the pedal makes playing very soft dynamic sounds a lot easier. The Pianissimo pedal operates directly with the FLK Firmware and is not a MIDI effect. The high resolution and dynamic range is preserved from Pianissimo to Fortissimo. Alternatively, this effect can be assigned to the Controllers B or K.

## CONTROLLER MODE CONTINUOUS OR SWITCH "CONTIN" "SWITCH"

Push **Mode** and **ON**. Display shows **īod**

Push and hold the black key labelled on housing "Cont Set".

Select button by pressing, knob by slightly moving. Check display. Keep holding key "Contr. set" while setting Contin or Switch by using the black keys labelled on housing.

cis<sup>'''</sup> (C#7) Contin 0-127 (continuous) Display **-[-**

dis<sup>'''</sup> (D#7) Switch off on (0-64 off / 65-127 On) Display **-5-**

## Buttons B1 B2

cis<sup>'''</sup> (C#7) Contin push button Display **-b-**

dis<sup>'''</sup> (D#7) Switch detent button Display **-d-**

Exit SKF Mode with the button **Mode**.

## PEDAL INVERS

Push **Mode** and **ON**. Display shows **īod**

Select a pedal or controller and push the black key labelled on housing „Ped Invers“ to invert the controller (relative to the current state). The display will show **--I**

Exit SKF Mode with the button **Mode**.

## PED CAL

Push **Mode** and **ON**. Display shows **īod**

Pedal calibration. More details see page 21 Pedals

## MIDI CHANNEL SELECTION 1 – 16

Push **Mode** and **ON**. Display shows **īod**

Push and hold the black key labelled on housing b<sup>'''</sup> (A#7) "Midi Ch." and use the white numeric keys to select the required MIDI channel from 1 to 16.

Exit SKF Mode with the button **Mode**.

## DISPLAY BRIGHTNESS

Push **Mode** and **ON**. Display shows **īod**

Using the prog buttons down up you can select low (1) or high (4).

Exit SKF Mode with the button **Mode**.

## KTB FUNCTIONS MK23 FUNCTION PIANO KEYS. TABLE OVERVIEW

Functions	Option key		Display	Default + Hints:
	DE	E		
Setup Store	„B	A#0	<b>SSt</b>	Stores user setups
Midi Hi Res (Optional)	,Dis	D#1	<b>rES</b> <b>HI</b>	Not activ Activ
Key Transp.	Fis	F#2	<b>0</b>	Transpose
Omni Mode	B	A#2	<b>On</b>	
Program Change	cis	C#3	<b>On</b>	
Control change	dis	D#3	<b>On</b>	
MIDI Act.	Fis	F#3	<b>On</b>	With MIDI Activity OFF you can also switch off the peep.
MIDI Act. + Receive	Fis + g	F#3 +G3	<b>rEC</b>	
MIDI Act. + Send	Fis + a	F#3 +A3	<b>5nd</b>	
Piano Modus	dis'	D#4	<b>OFF</b>	
Waterfall	fis'	F#4	<b>OFF</b> <b>100</b>	ON is fixed Velocity Default 100
Bank sel.	b'	A#4	<b>0</b>	
Aux 3	cis''	C#5	<b>-C-</b> <b>011</b>	
Aux 4	dis''	D#5	<b>-C-</b> <b>011</b>	
Pedal Left	fis''	F#5	<b>-S-</b> <b>067</b>	
Pedal Mid	gis''	G#5	<b>-S-</b> <b>066</b>	
Pedal right	b''	A#5	<b>-C-</b> <b>064</b>	
Contr. set			<b>Con</b>	Contr. set keep pressed. Use a Controller to select it
Taster B1			<b>OFF</b> <b>021</b>	Default
Taster B2			<b>OFF</b> <b>022</b>	
Drehregler K1			<b>OFF</b> <b>091</b>	
Drehregler K2			<b>OFF</b> <b>088</b>	
Drehregler K3			<b>OFF</b> <b>089</b>	
Drehregler K4			<b>OFF</b> <b>090</b>	
Mod Wheel	fis'''	F#6	<b>-C-</b> <b>001</b>	
Aftertouch	gis'''	G#6	<b>-C-</b> <b>000</b>	CC 130 > Last pressed note sends pseudo poly aftertouch.
pp Pedal (optional)	B'''	A#6	<b>PI A</b> <b>P--</b>	Not activ Activ
Ped Cal	fis''''	F#7	<b>CAL</b>	
MIDI Ch.	b''''	A#7	<b>1</b>	

## KTB FUNCTIONS MK23 INPUT PIANO KEYS. TABLE OVERVIEW.

Setup	Setup key		Display	Hints:
	Deutsch	English		
Transpose	,Fis	F#1	-6	Decrease Original Indrease
	C	C2	0	
	F	F2	5	
Switch on	h	B3	On	
Off	c'	C4	OFF	
Enter numerics	f'' bis a'''	F5 bis A6	0 -- 9	
Pianissimo Pedal (optional)	b'''	A#6	PI A	Not active Active
			P--	
Switch Controller	Cis''''	C#7	-5-	Midi on off
Continuous Contr.	Dis''''	D#7	-[-	Midi 0 - 127
Push button	Fis''''	F#7	-b-	For B1 and B2
Detent button	Cis''''	C#7	-d-	For B1 and B2
Invers	Fis''''	F#7	--1	
Midi channel 1 – 16	f'' bis a'''	F5 bis A7	1 -- 16	

Basic guideline:

Press and hold the option key.

Use a Controller to select it.

Adjust with setup keys.

Release the option key > settings are now adjusted.

Releasing the option key saves the settings. Two beeps in rising intonation signal successful saving. If the input was incomplete or incorrect, two beeps in falling intonation signal that the new settings were not saved. The previous settings remain.

## EXAMPLE SKF MODE (SECONDARY PIANO KEY FUNCTIONS)

HOW TO ENTER CONTROLLER NUMBER 91 (MIDI REVERB) TO KNOB K2:

Press button **Mode** and button **ON**. All four buttons **Prog B1 B2** shine red continuously and Mode starts blinking red. SKF Mode is now active. The display shows **Mod**.

Press and hold the black piano key "Cont Set" dis" (D#6). Hold this key for the whole setup process.  
Display: **Con**

Briefly spin the rotary knob K2. The display shows **-C-** then **000**

Enter the Controller number using the "Numeric Keys". Press key 9 then press key 1 for Controller 91. A short beep sounds after pressing the keys.

Release the black piano key "Cont Set".

Two beeps in rising intonation signal that the new setting has been saved successfully.

Exit SKF Mode with the button **Mode**.

Now you can change the Reverb intensity of the external sound source with the rotary knob K2 while playing.

SYNCHRONIZE KNOB POSITION AND EXTERNAL SOFTWARE:

The LED is red if synchronized. If you change settings in the external software (with mouse or touch screen etc) the LED goes off. Move the knob to synchronize, the LED lights red again.

Most external Software reacts immediately to a short movement of the physical knob and "jumps" to the current knob position. Some software allow to "seek" and "pickup" the position. Sometimes both ways are available.

Tip:

To enter longer numbers use Keys 10-16. For example: keys 12 and 7 for the number 127.

We recommend saving your current settings before quitting the Setup Mode with B-2 Setup Store.

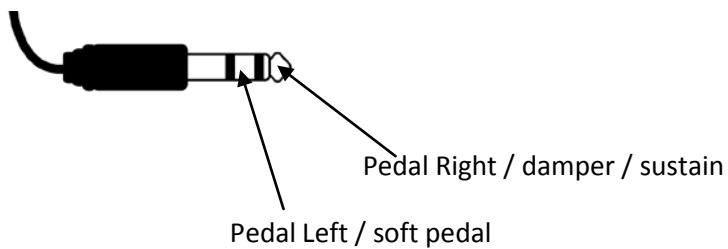
## TECHNICAL DETAILS

### PEDALS / FLK LICHTPEDAL LS MK23

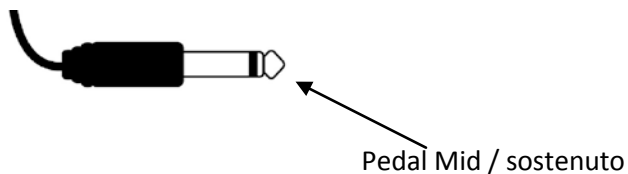
FLK Lichtpedal LS MK23. Connect in L/R socket. It is automatically detected by the MK23.  
All three pedals are continuous with touchless Light sensors.

See "Pedals" page 15 and "Convert to switch" page 17

Stereo Jack in socket L/R: Pedal (prepared to work with FLK pedals stereo jacks and the LS Pedal)



Jack in socket Mid (prepared to work with the FLK triple pedal mono jack)



Original double and triple FLK pedals have a continuous right damper pedal. Middle and left pedal are off on.

Factory settings support the most conventional damper pedals.

Using SKF Mode Ped Inv, every pedal can be inverted Display **--I**

To support pedals from other manufacturers you are able to calibrate the internal parameters to use the whole range of your pedal (calibration).

Special codes for MK23 pedal calibration using the SKF Mode:

Hold down the black key labelled on housing Ped Cal g#7 (G#7) and enter code for:

The FLK LS Light pedal is best calibrated for the MK23. No calibration is necessary.	
right pedal / damper / sustain	501
middle pedal / sostenuto	504
left pedal / soft	502
Aux 3	503
Aux 4	505
Factory setting FLK dual pedal until May 2014	510
Factory setting FLK triple pedal and new FLK dual pedal June 2014	511
resets <b>ALL</b> pedal calibrations to factory settings. (0 – 127 equals ~2 to 10 kOhm). User calibration data will be deleted!	Default 516

EXAMPLE:

Push **MODE** and **ON** simultaneously > Hold down “Ped Cal” (g#4) > Enter the required code > Release “Ped Cal” (g#4) > Ascending melody for confirmation

The minimum and maximum position of your pedal will be automatically measured and saved when quitting the SKF Mode by pressing **Mode**.

Hint:

*We recommend pushing the pedals by hand when calibrating as the results will be more accurate, especially if you only want to calibrate part of the travel range.*

*Instructions:*

*Push the pedal to the required minimum. After you let go “Ped Cal” (g#4) the current position is stored as zero point. Push the pedal now slowly to the desired end setting and hold this position. Store it by pushing **MODE**. This also exits SKF Mode.*

*Attention: The longest travel range within a calibration session is stored. Calibrating the pedal again overrides previous stored values.*

Almost any conventional pedal can be used with your FLK. (It may be helpful to use a Y stereo to mono splitter).

## EXPRESSION PEDALS AUX3 AUX4:

Please note: Input Aux 3 Aux 4 factory preset is **OFF**

Aux 3 for Expression pedals **Wiper on tip**



Pedals up to 50 K Ohm can be calibrated (use calibration code 503) .

Aux 4 for Expr. pedals **Wiper on ring**



Pedals up to 50 K Ohm can be calibrated (use calibration code 505).

## LSOUND FLK AUDIO (OPTIONAL)

No driver necessary. Should be automatically installed, selected and displayed as LSOUND by Win or Mac OS.

If automatic installation does not work....

Win:

Right-click on the speaker icon in the Windows menu bar (bottom right) to display the "Playback Devices" menu.

Clicking on "Playback Devices" opens a list of selectable audio devices.

Select **LSound** in the list as playback device and set it to "Standard (Set Default)".

Confirm with OK .

Mac:

Open System Preferences, menu item Sound (Sound speaker icon) ,submenu Output.

Select **LSound** from the list.

Tip (without guarantee):

Free USB drivers (like "Asio4all" or for experienced users "FlexAsio"...) may give better results.

SOCKETS:



### USB C MIDI / Audio Interface PD

You can connect your device (laptop, Ipad etc..) to the USB C jack, play their sounds directly and your device will be powered and charged at the same time. You no longer need an external audio interface.

Sample rate up to 192000 Hz possible.

PD Power Delivery charging function (Individual devices may not be able to fully utilize PD).

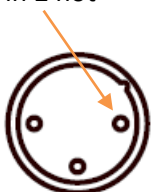
### Line out right, left/Mono

Connectors for 6.3 mono jack cable per channel. The mono signal output is at jack left/mono.

### XLR out right, left balanced

balanced.

Pin 2 hot





### Headphones:

3.5 stereo jack

6.3 stereo jack

If necessary, you can adjust the volume of the individual connection groups to your needs. The connection groups can be reached via the following controller number:

Connector group	CC Number
Line	135
XLR	136
Headphone 3,5	137
Headphone 6,3	138

You can assign connector groups to any controller on your keyboard.

Connector groups without CC Nr assignment are controlled with the master volume knob.

Assigning CC numbers in the KTB see example page 20

### FLK IOS APP (OPTIONAL)

Connect standard MK23:

USB B <> Camera Adapter <> Lightning iOS device.

Connect MK23 with Lsound Audio Out option:

USB C <> USB C iOS device.

Bluetooth not available.

## POWER SUPPLY

Always use the original FLK power supply. It is suitable for AC voltage 100 V to 240 V at 47 Hz to 63 Hz.

Output: 12V DC 1,8 A 25 Watt

DC plug 5.5 x 2.1 x 11 mm, Plus inside, Minus outside.

Damages caused by using any other form of power supply are not covered by the FLKeys warranty.

## AUTO POWER ON

As soon as the MK23 is connected via the FLK Power supply with an active power socket, it will be on. This could be a helpful feature. Especially during gigging and live performances. You can also switch off and on with the **on** button. The Auto Power On Feature will be active again after about 10 seconds.

## NOTE HOUSING RUBBER FEET

Malfunctions or damages by arbitrarily, improperly removed or exchanged rubber feet (elastic damper on the case ground) are not covered by the FLKeys warranty.

Please let us know. We will assist you.

The rubber feet should be changed to M5 screws with similar length.

## FIRMWARE UPDATE FLK LOADER

Download zip file

Be sure the LACHNIT MK is turned on and connected via USB.

Firmware .hex files are up to date and already included.

You can check the FLK website for updates.

## ADVANCED MODE: FOR TECHNICIANS OR , EXPERIENCED USERS

Check or choose firmware . hex files, version nr., different combinations etc...





## TECHNICIAN:

Be sure that you know what you do...

We do not take responsibility for unintended, wrong usage or non FLKeys Firmware hex files.

## FACTORY SETTINGS MK23

Function	value / setting	MIDI Controller No.	Restored on power Up	Notes
Midi	1		yes	
Program	1		yes	
Omni	On		yes	
Program Change	On		yes	
Control Change	On		yes	
MIDI activity	On receive /transmit		yes	
Piano Mode	On		yes	
Waterfall	Off / MIDI 100		yes	
Pedal right damper sustain pedal	switch On	64	yes	
Pedal mid sostenuto	switch On	66	yes	
Pedal left soft	switch On	67	yes	
Aux 3 Expr TRS	continous Off	11	Yes	Yes
Aux 4 Expr RST	continous Off	11	Yes	Yes
B1 Button	b Off	21	Yes	Yes
B2 Button	b Off	22	Yes	Yes
K1 Knob	continous On	91	Yes	Yes
K2 Knob	continous Off	88	Yes	Yes
K3 Knob	continous Off	89	Yes	Yes
K4 Knob	continous Off	90	Yes	Yes
Mod. Wheel	continuous On	1	yes	yes
Aftertouch	continuous On	0 (Channel AT)	yes	
Knob Dynamics / Velocity Curve Edit	neutral (green LED) saved setups		yes	
Transpose	0		no	No??
Pedals	inverted		yes	
Knob, Wheels, Aftert.	inverted		Yes	Yes
Pianissimo pedal			Yes	Yes
Midi-resolution			Yes	Yes
Piepser			Yes	Yes
Display bright <> darker			yes	

Pedal input is inverted if no pedals are connected. Display:   or    
 Calibration settings are **not** changed by reset to factory settings.

Function		Transmitted	Recognized	Remarks
Basic Channel:	Default	1 – 16	1 – 16	Memorized
	Changed	1 – 16	1 – 16	
Mode	Default	1, 3	1, 3	Memorized
	Messages Altered	X *****	O 4 => 3, 2 => 1	
Note Number	True Voice	15 – 113, 6 – 113 (*4) *****	X X	MK23 Imperial 97: Note Nr. 6 – 14 no aftertouch available.
Velocity	Note ON	O (1 – 127)	X	Adjustable (*1)
	Note OFF	O (1 – 127)	X	
After Touch	Keys	X	X	(*4)
	Channels	O	O	
Pitch Bend		O	O	MK23 Studio only
Control Change (*2)	1	O	O	Modulation
	4	O	O	Expression
	7	O	O	Main Volume
	64	O	O	Hold Pedal
	66	O	O	Sostenuto
	67	O	O	Soft Pedal
	91	O	O	Reverb
	0 – 127	O	O	Customized Controller (*3)
Program Change (*2)	True #	O (0 – 15) *****	O (0 – 127) 0 – 15	16 => 0, 17 => 1, ...
	System Exclusive	X	X	
Common	Song Position	X	X	
	Song Select	X	X	
	Tune	X	X	
System Real Time	Clock	X	X	
	Comand	X	X	
Aux Messages	All Sounds Off	O	O	
	Reset All	O	O	
	Controller	X	O	
	Local On/Off	O	X	
	All Notes Off	O	O	
	Active Sense	O	O	
	Reset			
<b>Remarks</b> *1: Note On Velocity Calculation can be adjusted according to your personal style. *2: Transmission and reception can be activated and deactivated separately. *3: Each controller (except volume, Prog up down, on, mode, panic and pitch wheel) can be customized to a user defined controller number. *4: LACHNIT MK23 Imperial 97 (97 Keys) <i>Note Nr. 6 – 14 no aftertouch available.</i>				

Mode 1: Omni On, Poly Mode 2: Omni On, Mono  
Mode 3: Omni Off, PolyMode 4: Omni Off, Mono

O : Yes  
X : No

## SPECIAL MESSAGE SECTION

**WARNING:** Do not place this product in a position where anyone could walk on, trip over, or roll anything over power or connecting cords of any kind.

**SPECIFICATIONS SUBJECT TO CHANGE:** The information contained in this manual is believed to be correct at the time of printing. However, FLKeys reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

**NOTICE:** Service charges incurred due to a lack of knowledge relating to how a function or effect works (when the unit is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owner's responsibility. Please study this

manual carefully and consult your dealer before requesting service.

**IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!** This product, when installed as indicated in the instructions contained in this manual, is compliant with CE / FCC Part 15 10-1-12 Edition / ICES-003 Issue 5 August 2012. Modifications not expressly approved by FLKeys may void your authority to use the product.

**IMPORTANT:** When connecting this product to accessories and/or another products use only high quality shielded cables. Cable/s supplied with this product **MUST** be used. Follow all installation instructions.

## PRECAUTIONS

### PLEASE READ CAREFULLY BEFORE PROCEEDING

Please keep this manual in a safe place for future reference



### WARNING

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards. These precautions include, but are not limited to, the following:

#### Power supply

Do not place the power cord near heat sources such as heaters or radiators, and do not excessively bend or otherwise damage the cord, place heavy objects on it, or place it in a position where anyone could walk on, trip over, or roll anything over it.

Only use the voltage specified as correct for the instrument.

Use the specified adaptor only. Using the wrong adaptor can result in damage to the instrument or overheating.

Check the electric plug periodically and remove any dirt or dust which may have accumulated on it.

#### Do not open

This instrument contains no user-serviceable parts. Do not open the instrument or attempt to disassemble or modify the internal components in any way. If it should appear to be malfunctioning, discontinue use immediately and have it inspected by qualified FLKeys service personnel.

### Water warning

Do not expose the instrument to rain, use it near water or in damp or wet conditions, or place containers on it containing liquids which might spill into any openings. If any liquid such as water seeps into the instrument, turn off the power immediately and unplug the power cord from the AC outlet. Then have the instrument inspected by qualified FLKeys service personnel.

Never insert or remove an electric plug with wet hands.

### Fire warning

Do not put burning items, such as candles, on the unit.



CAUTION

Always follow the basic precautions listed below to avoid the possibility of physical injury to you or others, or damage to the instrument or other property. These precautions include, but are not limited to, the following:

#### Power supply

When removing the electric plug from the instrument or an outlet, always hold the plug itself and not the cord. Pulling by the cord can damage it.

Remove the electric plug from the outlet when the instrument is not to be used for extended periods of time, or during electrical storms.

#### Location

Do not place the instrument in an unstable position where it might accidentally fall over.

Before moving the instrument, remove all connected cables.

When setting up the product, make sure that the AC outlet you are using is easily accessible. If some trouble or malfunction occurs,

### If you notice any abnormality

When one of the following problems occur, immediately turn off the power switch and disconnect the electric plug from the outlet. Then have the device inspected by FLKeys service personnel.

The power cord or plug becomes frayed or damaged.

It emits unusual smells or smoke.

Some object has been dropped into the instrument.

There is a sudden loss of sound during use of the instrument.

immediately turn off the power switch and disconnect the plug from the outlet. Even when the power switch is turned off, electricity is still flowing to the product at the minimum level. When you are not using the product for a long time, make sure to unplug the power supply from the wall AC outlet.

Use only a high quality stand specified for the instrument.

#### Connections

Before connecting the instrument to other electronic components, turn off the power for all components. Before turning the power on or off for all components, set all volume levels to minimum.

Be sure to set the volumes of all components at their minimum levels and gradually raise the volume controls while playing the

instrument to set the desired listening level. This product in combination with sound software, an amplifier and headphones or speaker/s, may be capable of producing sound levels that could cause permanent hearing loss. DO NOT operate for long periods of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.

**IMPORTANT:** The louder the sound, the shorter the time period before damage occurs.

#### Handling caution

Do not insert a finger or hand in any gaps on the instrument.

#### Notice

To avoid the possibility of malfunction/damage to the product, damage to data, or damage to other property, follow the notices below.

### **Handling, transport and maintenance**

If you want to ship the instrument via mail, parcel service, rail, forwarding agency or others you always must use the original packaging. Therefore, you should keep the original packaging. The instrument has to be shipped only in the original packaging. Any instruments shipped to us for return, exchange, warranty repair, update or examination must be in their original packaging! Any other deliveries will be rejected. Therefore, you should keep the original packaging and the technical documentation.

Transport the instrument carefully, never let it fall or overturn. The hammer action inside could be damaged. Make sure that during transport and in use the instrument has a proper stand and does not fall, slip or turn over because persons could be injured.

Do not use the instrument in the vicinity of a TV, radio, stereo equipment, mobile phone, or other electric devices. Otherwise, the instrument, TV, or radio may generate noise.

Do not expose the instrument to excessive dust or vibrations, or extreme cold or heat (such as in direct sunlight, near a heater, or in a car during the day) to prevent the possibility of panel disfiguration, damage to the internal components or unstable operation. (Verified operating temperature range: 5° – 40°C, or 41° – 104°F.)

Do not place vinyl, plastic or rubber objects on the instrument, since this might discolour the panel or keyboard.

When cleaning the instrument, use a soft, dry cloth. Do not use paint thinners, solvents, cleaning fluids, or chemical-impregnated wiping cloths.

Never insert or drop paper, metallic, or other objects into the gaps on the panel or keyboard. This could cause physical injury to you or others, damage to the instrument or other property, or operational failure.

Do not rest your weight on, or place heavy objects on the instrument, and do not use excessive force on the buttons, switches or connectors.

Do not use the instrument/device or headphones for a long period of time at a high or uncomfortable volume level, since this can cause permanent hearing loss.

If you experience any hearing loss or ringing in the ears, consult a physician.